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Minimizing Lost Motion in Foundry

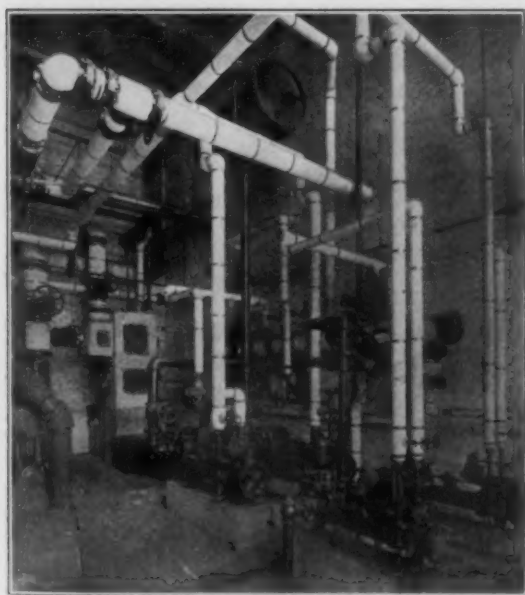
Keeping Materials Flowing from Raw to Finished Product — General Features of New Chicago Plant — Protection Against Fire Loss

IN the design and construction of the new plant of the W. A. Jones Foundry & Machine Co., Chicago, two ideas were foremost in the minds of the designers, these ideas not being new, but of the kind invariably interesting in their evolution. It was sought to arrange every building and department in a manner that would insure the continuous progression of material from raw to finished products; in other words, to have all material move steadily forward from the receiving platform or foundry supply house, always under roof and invariably by mechanical means, until placed in a freight car or vehicle for shipment. Also kept in mind was provision for future extension of the plant. The general desire, in conjunction with the

a manner to permit the fullest sequence of operations. To facilitate handling of the product in all stages of manufacture, every department, except that in which patterns are made, is traversed by an industrial railway and an electric monorail trolley hoist which augment the service rendered by overhead traveling cranes. The foundry and machine shop are equipped with 10-ton traveling cranes, and the capacity of the trolley crane is 2 tons. The handling of materials by manual labor is therefore reduced to the minimum, and the work greatly expedited.

GENERAL FEATURES OF LAY-OUT

In the view of the foundry herewith, the trolley



Pumps and piping in the pump room. At the extreme left is a 1000-gal. per min. pump for supplying water in fighting fire



Water supply and fire-fighting equipment is ready for use. Though protected by the Chicago Fire Department, the W. A. Jones Foundry & Machine Co. has a fire crew among its own employees.

ideas to which reference is made, was to provide good lighting and ventilation, and a general lay-out that would make for maximum efficiency and the comfort of employees. Before the plans were drawn, many plants were visited, and desirable features, wherever found, were adopted, if their inclusion in the general plan was found feasible. The company manufactures elevating, conveying and handling equipment, power transmitting machinery and spur gear speed reducers.

In furtherance of continuous movement, always toward the goal of completion and with all tendency to retrogression minimized, the plant is laid out in

and the industrial tracks which extend around the four sides of the foundry floor are shown. Near the left center is a turntable enabling the cars to run at right angles to the main track and transport heavy cores from the core ovens. The supply of iron for filling the smaller molds is contained, in the usual manner, in large ladles mounted on cars from which the smaller ones, used in pouring, are filled, while in the case of a large mold the overhead crane handles a ladle of sufficient size. Both foundry and machine shop are of steel frame construction and have continuous monitor sash controlled from the floor. The side windows have triple sash



An industrial railway and monorail system reaches every department, facilitating the progressive movement of material from receiving to shipping platforms. The longitudinal section of the foundry is served by a 10-ton Whiting crane. The tracks are laid in cement.

which are counterbalanced, and so constructed that two-thirds of their area can be opened.

One end of the foundry is devoted to the casting of machine-molded pulleys up to 60 in. in diameter, while in the center of the floor are pits for casting pulleys, etc., up to 10 ft. in diameter. The office of the foundry superintendent, located in a square balcony in one corner of the foundry, has continuous sash, affording a clear view of every part of the floor, while outside light pours in on two sides; has facilities for washing, etc., and is as comfortable as that of any other executive. The foundry is 130 x 200 ft. in plan. A two-story building of mill construction, the first floor of which is devoted to cleaning and grinding castings, is 80 x 100 ft. Castings leaving the foundry find this room in their path on their way to the machine shop.

CONVENIENT STORAGE OF RAW MATERIALS

The pattern shop occupies the second floor of a two-story building, 77 x 93 ft., the ground floor being devoted to pattern storage, for which there is the usual rack equipment. Adjoining the foundry is a room for the storage of sand, coke and other materials unloaded from cars which approach the building on a spur of the Chicago Belt Line Railway. Coke for consumption in the core ovens is shoveled directly from the piles into convenient pits adjacent to the fire doors of the ovens. Coke and iron for the cupola is carried to the charging floor in cars which before being run on the electric elevator are weighed, the tracks passing over a scale. The storage and melting compartments are enclosed by thick brick walls.

The charging floor, reached by an iron stairway, is entirely of steel plates supported by heavy steel beams and capable of supporting all that can be placed on it. One cupola, with a capacity of 50 to 60 tons per day, is in use, while there is provision for a second of similar size. The core oven equipment consists of two double-drawer Whiting ovens, and another for the accommodation of large pieces on cars. Among other items of equipment are electric riddles.

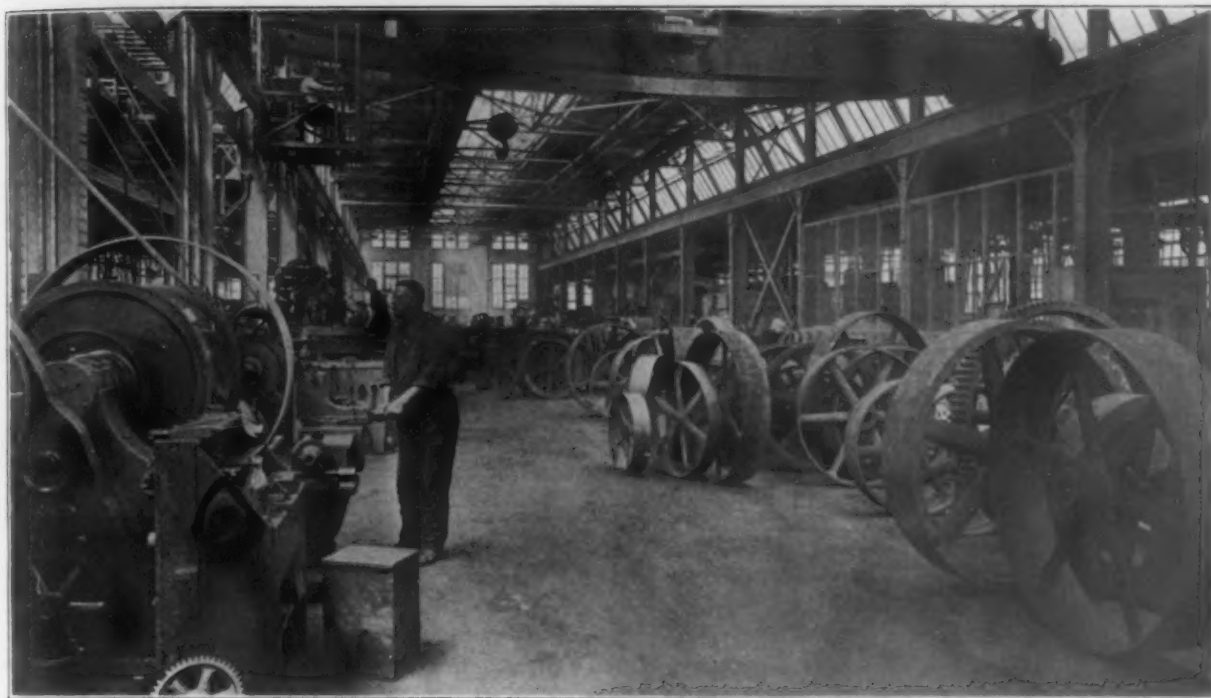
The machine shop, 130 x 320 ft., is planned to permit of its extension to 600 ft. in length.

Through one end of it passes another spur of the belt line railroad, the arrangement enabling the traveling crane to assist in loading without regard to weather conditions. Large doors give access to trucks, when delivery is to be made in that manner. Work in the shop is departmentalized, pulleys being machined in one section, gears in another, turret lathe operations performed in another, etc. All spur gears up to 84 in. are hobbled, and there is equipment for hobbing worm gears and planing bevel gears. The larger machines are equipped with direct motor drive, and the smaller tools have group drive. The shop floor is of factory maple, with a sub-floor of concrete.

On the second floor of a building adjoining both the foundry and machine shop are locker rooms, and bathing and washing facilities for the employees, separate rooms containing shower baths and white enamel-ware wash bowls being provided for the machinists and molders. Each has its own entrance. Toilets and drinking fountains are located conveniently to the working floors.

COMPLETE FIRE-FIGHTING EQUIPMENT

The attention given to preventing and fighting fire is worthy of note. While the buildings have the protection afforded by the fire department of Chicago, and all are equipped with sprinklers and automatic fire doors, the company has its own department composed of employees, each of whom has his appointed place or duty should fire occur. A signal system is there to notify the power-house employees when an alarm is given, and cause a 1000-gal. per min. underwriters' fire pump to be set in motion. Also available is the water from a 60,000-gal. gravity tank. Scattered about the grounds are small houses about 8-ft. sq. in which fire hose is laid on shelves, already connected with the water mains, and ready for action. These small houses also contain axes and crowbars. Each unit of the plant is separated from the adjoining one by automatic fire doors. Adjoining the drafting room is a large fireproof vault for the storage of plans and records, and there is a similar vault for the storage of office records. As a result of these precautions against fire, and the equipment for fire



The machine shop of W. A. Jones Foundry & Machine Co. Monorail and industrial railway are located to the left of the picture. Toolroom is to the right, enclosed by wire netting. Through one end, from which deliveries are made, passes a spur of the Chicago Belt Line Railway.

fighting, the insurance rate of the plant is low.

The power house is equipped with automatic smokeless furnaces made by the Model Stoker Co., Dayton, Ohio, with boilers of 400-hp. capacity, and an automatic ash removal system. For convenience in coal storage, the boiler room is depressed below the engine-room floor. The engine room contains a direct-connected Ridgeway engine and dynamo, the engine being 265 hp. Recording meters cover all requirements in that direction.

The entire plant is heated by exhaust steam, and lighted by nitrogen incandescent lamps having reflectors. It was designed by Davidson & Weiss, architects, and erected under the supervision of Patterson & Davidson, engineers, Chicago.

The W. A. Jones Foundry & Machine Co. was founded in 1890 by W. A. Jones, who is still its president, its first home being in an alley between Clinton and Canal Streets, Chicago. Subsequently it occupied two other locations. Its new plant covers approximately four acres, and the company owns altogether 26 acres, part of which is used as a ball ground for the employees. T. A. Jones and W. G. Jones are the active heads of the company.

Will Install New Open Hearth

The Judson Mfg. Co., Emeryville and Oakland, Cal., is putting a modern saw-tooth roof building of structural steel over its rolling mills. The company is now operating very successfully its new 35-ton open-hearth furnace. Ground is broken and concrete foundation started for an additional 35-ton open-hearth furnace. Electric motors and gearing have been ordered for rolling mill operation, dispensing with two-thirds of the steam power, which has been in use for 30 years.

A bill imposing a tax on apprentices in all technical and commercial establishments has been introduced into the French Chamber of Deputies. The sums thus levied are to be paid into a departmental treasury and are, together with a proportionate government grant, to be spent on technical and commercial education. The tax per apprentice varies with the total number of hands employed by the same company. The bill has been referred to the Commission for Commerce and Industry.

Pulverized Fuel for Metal Furnaces

In the September issue of the *General Electric Review*, V. Z. Caracristi, vice-president, Locomotive Pulverized Fuel Co., discussing the utilization of waste and undeveloped fuels in pulverized form, touched on the use of pulverized fuel in metallurgical furnaces. He said that no serious difficulty has been met in the substitution of pulverized fuel for fuel oil in furnaces of large volume where the feeders utilized were such as to deliver the fuel at a uniform rate, without a lumpy condition at the delivery point. Serious difficulties have had to be overcome to apply its use to furnaces of small volume.

It is necessary in furnaces of small volume, he continued, to reduce the velocity of the incoming fuel to the minimum. This velocity should be less than the velocity of the low pressure air used for combustion, which should have less than $\frac{1}{4}$ in. of water pressure and which should be thoroughly intermingled with the fuel before combustion is commenced. If this intermingling is attempted where the temperature is sufficient to draw off the volatile constituents from the coal and form coke, serious difficulties in the combustion and ultimate entire stoppage of the furnace operation will take place.

It has been found possible to operate pulverized fuel furnaces, he stated, to give an oxidizing or reducing atmosphere and to secure close temperature regulation as low as 400 deg. C. The cost of fuel under these conditions, with an allowance of 35 cents per ton for pulverizing and a cost of \$3 per ton for the coal, is comparable with fuel oil at $1\frac{1}{2}$ cents per gallon.

For metallurgical and industrial purposes it is desirable to have a volatile content in the coal in excess of 22 per cent, and to pulverize this coal to a fineness so that 75 per cent will pass through a 200-mesh screen, and that the product will be relatively free from particles of coal of a coarseness to exceed an 80-mesh screen. He emphasized also that the coal should be dried so that the moisture content of the 22 per cent volatile coal be less than 1 per cent. The moisture content of coals from 36 to 38 per cent volatile may be as high as $2\frac{1}{2}$ to 3 per cent.

Powdered coal is to be burned in the 2500 hp. of boilers of the Oneida Street plant of the Milwaukee Electric Railway & Light Co., Milwaukee, a contract for the equipment having been placed with the Locomotive Pulverized Fuel Co., 30 Church Street, New York.

Cost-Plus System Severely Criticized

But the Perplexing Problem Is How to Find a Better Method of Granting Government Contracts—
Some Modification May Be Devised to Meet Objections

WASHINGTON, Sept. 25.—There is a growing feeling in Congress that the cost-plus-profit form of contract is a bad thing for the Government and possibly a worse thing for the industries of the country at large. If Congress would remain in session another 60 days, there is no doubt a very serious attempt would be made by certain members to force through either a joint resolution or a rider on a budget bill forbidding this method of contracting. Whether the movement would be successful cannot be hazarded, for representatives of the War Industries Board and of the chief purchasing bureaus of the Government have done much to convince the leaders that while the cost-plus contract has its weak points, there is no other method to meet the situation that now prevails in the industries with which the Government is doing business. In view of the fact that Congress is now making every effort to adjourn by the middle of October, it is probable that any serious attempt at legislative restriction of contracting methods will be postponed until the regular session in December. There is no doubt, however, that a great deal more will be heard on this subject, the importance of which is daily increasing.

The first suggestion of a cost-plus contract was made to the Navy Department by the Bethlehem and Midvale Steel companies in connection with the controversy in the last Congress as to the price of armor plate. It was then proposed that the Federal Trade Commission should investigate the cost of production and fix a "reasonable" profit at which the armor makers agreed to supply the needs of the Navy for an indefinite period. The Secretary of the Navy did not adopt this suggestion and Congress finally appropriated \$11,000,000 for the construction of a Government armor factory. The sum allotted for the purpose proved wholly inadequate and for various reasons, heretofore set forth in this correspondence, the project has been indefinitely postponed, if not abandoned.

Building Battleships

When the Navy Department undertook to let contracts for the first installment of warships included in the three-year program adopted by the last Congress, the cost-plus contract was again suggested by several of the leading shipyards. With a runaway market for steel of all kinds and with the cost of labor rising by leaps and bounds, the shipbuilders found it impossible to protect themselves by options which must, in some cases, run nearly four years into the future. They, therefore, offered to build several of the battleships at cost plus a profit which was either included in the proposal or left to the Federal Trade Commission for determination. At the time this proposition was made to the Navy Department, only a small part of the Administration's commandeering project had been enacted into law and as Congress, foreseeing the situation that would develop, had authorized the Secretary of the Navy to make cost-plus contracts for certain vessels, if in his opinion it seemed to the advantage of the Government to do so, the proposals for several battleships made on this basis were accepted and the contracts let in accordance therewith.

The Cantonment Problem

A big impetus was given to the cost-plus method of contracting when it became necessary to build in three months 16 big cantonments, each of them a small city, capable of housing 30,000 to 40,000 men. Time was the essence of these contracts and was regarded by the War Department as so overshadowing a consideration that cost became almost a negligible item. It was necessary to bring together an enormous mass of material and 16 small armies of workmen ranging from

5000 to 15,000 men each. Plans for the cantonments had not even reached the stage of pencil sketches and there were absolutely no specifications for a single important detail of the work. Under the circumstances, it is not surprising that no contractor could be found who would put a price upon such work. More than two score of reputable concerns, however, offered to build the cantonments at cost plus a fair profit and on this basis all the contracts were let. To guard against the payment of exorbitant profits, the Government adopted a graduated scale under which a profit of 10 per cent on the smallest contracts diminished steadily with the amount involved until that on the largest contracts it was but 6 per cent, supplemented with the stipulation that in no event should a single contracting concern receive a profit in excess of \$250,000.

As the upset limit for the cantonment contracts restricted the contractors, in any event, to what would be regarded as a fair commercial profit, the interests of the Government were fairly safeguarded so far as this factor in the equation was concerned. It soon became apparent, however, that the restriction of the contractor's profit in no way limited the cost to the Government of the cantonments. The necessity of gathering together a large force of skilled workmen to complete the buildings on time resulted in a steadily rising scale of wages and it is understood that in many trades some of the contractors have paid 100 per cent advances over normal wage scales. It has been a common thing for carpenters previously earning \$4 per day to receive \$7.50, and in other trades the advances are said to have been even greater. At the time this is being written, there are running in the Washington newspapers and on cards in the street railway cars advertisements of the contractors of the cantonment at Camp Meade, a few miles from this city, offering day laborers \$3.30 per day with free transportation to and from work. This cantonment is now two weeks overdue and the contractors are making every possible effort to complete it. The Government officials in charge, including the constructing quartermaster, are fully aware of what is being done but can suggest no other method of meeting the situation.

Contracts for Rifles

Another notable instance of the use of the cost-plus contract is in connection with the manufacture of 1,000,000 rifles for the army by the Remington and Winchester companies with the use of special machinery purchased from the British Government. At the time these contracts were made not a single manufacturer in the United States possessed the necessary equipment to make the Springfield rifle, the standard arm adopted for the service, and it was only by substituting the Lee-Enfield rifle that the War Department was able to contract with the Remington and Winchester companies. To equip the smallest plant to make a complete rifle would involve the manufacture of a full set of dies, jigs, gages, automatics, etc., which, even in time of peace, could not be turned out in less than eight months, and with the gage makers fully employed as they have been since the beginning of the war, the period would be indefinitely longer.

The companies having the British rifle contracts lost heavily on them, and, facing a rising market for both material and labor, they declined to make rifles for the United States Government at a flat price, frankly declaring their willingness to have their plants commandeered and operated by the Government rather than take the risk that would be involved in working on the basis of an upset price. The War Department, acting under the advice of the Munitions Board, thereupon made a contract on a basis of cost plus 10 per cent for

profit and included as an item of cost either the interest on the plant owned by the contractors or the amount paid for the rental of leased plants. These contracts have been severely criticized in Congress though stoutly defended by both Democratic and Republican leaders.

The System in Shipyards

Cost-plus contracts have also been used for the construction of three big shipyards to be owned by the Government and for the assembling of fabricated steel ships therein. The United States Shipping Board had exhausted the shipbuilding facilities of the country and could find no shipyard owners willing to extend their plants at their own risk or to undertake the assembling of fabricated steel ships throughout a period of at least 18 months during which labor costs might increase very materially. The cost-plus contract appeared to be the only solution of this difficulty and it was accordingly adopted.

The War Department is now pushing another huge project on the cost-plus basis involving very large extensions in 12 of the leading private plants capable of making gun forgings and machining and assembling guns and gun carriages and of producing artillery ammunition. Obviously a large part of these facilities will be almost valueless after the war, when neither the contractors nor the Government will have any use for them. With so much uncertainty as to the cost of building material and the expense of construction, the War Department has decided that the cost-plus contract is the only practicable method for arranging for this work.

The Big Fleet of Destroyers

It is understood that the Navy Department will also utilize the cost-plus contract for the extension of half a dozen of the largest shipyards in which the big fleet of destroyers are to be built and will extend the system to two or three private establishments in which the power units are to be manufactured. It goes without saying that after the enormous addition to the destroyer fleet contemplated by this project has been made, the special facilities provided for their construction will hardly be worth 10 cents on the dollar, as they are practically useless for the building of merchant vessels, even if the demand for such vessels after the war cannot be fully met by other equipment.

In considering the advisability of making cost-plus contracts in the various instances above summarized, the Government has had but a single alternative, namely, the commandeering of the plants in question and production under direct governmental supervision. It hardly need be said that the Government has no organization for any such purpose and could not assemble one and properly train it within a period of several years. Government manufacture, in nearly all instances where it has been tried, has proven uniformly more costly than private work. Where wages are concerned, Government establishments are easily forced to make increases and the leaders of organized labor have found little difficulty through political pressure in so influencing conditions of employment, hours of labor, etc., as to drive the labor cost of Government establishments far above that of private concerns. With these facts in view, Administration officials and conservative members of both houses of Congress have felt that any profit which contractors might make on cost-plus contracts would be much more than offset by the increased cost of production under governmental supervision.

The Effect on Industries

No one here is blind, however, to the highly demoralizing effect of these contracts on the industries of the country and the tremendous burden upon the taxpayers resulting from their operation. In the House of Representatives during the past week, the subject has been debated almost to the exclusion of every other topic and several members have declared their intention to do everything in their power to put an end to this system. Representative Mondell, of Wyoming, a prominent member of the Committee on Appropriations, recently attacked the cost-plus contract in con-

nection with the manufacture of rifles. "A contract," said he, "that takes from the man who spends the money every incentive to economy and efficiency, every incentive to keep down the cost, and, on the other hand, increases his compensation, increases his income, increases his profits as the cost advances and inefficiency increases, is bound to be a delusion and a snare. It cannot help being expensive. In nine cases out of ten, it is more expensive than any contract that would be likely to be entered into under competitive bidding, even when prices are increasing and costs mounting, because when you take from a man the incentive to keep down costs in labor, material, and overhead charges added costs do not interest him except as they advantage him in the matter of increased profits."

"In this case it would seem that in addition to the contractor receiving 6 per cent income on his investment, full recompense for all the wear and tear of his machinery, a certain amount for overhead charges, he is to get 10 per cent on the cost of the output. Such a contract does not strike me as being likely to result in economy, as being wise or judicious, or one that the Government ought to enter into. It had been entered into before the committee took the matter up, but I, for one, hope that in the future in the expenditure of these vast sums of money, the Government may find better forms of contract and pursue better business methods in the expenditure of the money than seems to have been pursued in this particular case."

Mr. Sisson's Criticism

Representative Sisson of Mississippi, another member of the Appropriations Committee, declared that the tendency of cost-plus contracts "is to increase the price of material and labor, for it entirely eliminates all source of competition, and, however good and patriotic and honest a munition maker may be, costs the people many millions, for there is that desire in every heart to make money, and this leaves the matter of profits entirely in the hands of three concerns, and unless our officials act with more business judgment in the future, the people will pay dearly for this lack of efficiency."

"There is every encouragement," Mr. Sisson continued, "for extravagance in labor, extravagance in materials, and there is no incentive to the saving, except the miserable milk-and-cider sentiment urged by some, that these men will continue business after the war is over and will not want unreasonably to increase the price of labor or unreasonably to increase the price of materials. I have no sort of sympathy as a business man for that sort of proposition; and I do not believe there is a member of this House, in the transaction of his own business, who would have entered into this sort of contract for the purpose of manufacturing anything for himself. I believe in competition; and if we had permitted members of these smaller concerns to put in bids for 25,000, 30,000 or 50,000 rifles, we would not have impeded the progress at all in the million rifles and the Government then would have had the opportunity to determine whether or not it got just as good rifles and got them as promptly as under this contract, and whether this method would have been a proper method to have been pursued by the Government, even though they wanted to make contracts with these large concerns."

An Erroneous Assumption

Representative Sherley, of Kentucky, one of the best informed members of the Appropriations Committee, who for several years has had charge of the fortifications appropriation bill, drew Mr. Sisson's attention to the fact that the assumption that there are many small concerns that can make rifles is wholly erroneous. "I wish it was true," he said, "but it is not true. It would take a great deal of time to get the tools, jigs, dies, etc., to equip a manufacturer even if he were familiar in a general way with the work of making rifles."

Representative Dallinger of Massachusetts made a very sharp attack on the cost-plus contract under which he said the most extravagant compensation was being paid by contractors to men who were not even skilled workers. He instanced a man who was not a carpenter by trade but merely more or less handy with tools and

who was employed at \$7.50 a day and \$15 a day on Sundays and holidays on a cantonment job. The result of such practices, he said, was to greatly embarrass manufacturers who are working on a reasonable basis of profit. "Manufacturers who are honestly trying to do the best they can for the Government in this crisis," said he, "find that their men are being hired away from them by these contractors who are offering all kinds of wages. It is not fair to the manufacturers of the country who are seeking to give the Government supplies at a fair price. It does seem to me that something ought to be done by the Committee on Appropriations with regard to future contracts to limit, and, if possible, to prohibit the system of awarding contracts without competition on the cost-plus-commission basis."

Fitzgerald Sees Both Sides

Mr. Fitzgerald, of the Appropriations Committee, who has had a wider experience in supervising the expenditures of the Government than any man in Congress, sees both sides of this problem. "The 10 per cent cost contracts," he said in discussing the matter on the floor, "have been criticized. One of the difficulties that confronted the Government at the time was that no reputable contractor, no contractor who understands his business and who is not attempting to get a contract merely to finance it and to turn it over at a profit, in view of the conditions of the labor market and the material market, was willing to enter a contract on a very large scale which did not make provision for a constantly increasing cost, both of materials and labor. No one can predict from day to day what labor will bring, and unless the Government had taken the measures it did take to control and obtain the materials to be utilized in many of those enterprises, it would have been impossible to determine what the cost of material would be.

"The Government was not in the position of a private citizen to go into the market where there was an ample supply and ample competition, but the Government was in the position of having requirements that far exceeded not only the visible supply but were far in excess of existing facilities to furnish materials. Under such circumstances, the contracts had to be made and business had to be done, and the Government work had to be carried on under conditions and in ways that in normal and ordinary times would not have been attempted. I suggest to the gentlemen that if they will take the public hearings of the Committee on Appropriations and read them carefully, they will find that many of these suggestions are without foundation and should not be used here as the basis of criticism for which there is no justification."

Uncle Joe's Comment

Next to Chairman Fitzgerald in point of experience in overlooking governmental expenditures is Representative Cannon, who for many years headed the Appropriations Committee and served for a long period as Speaker of the House. "I am not a manufacturer," Mr. Cannon said in discussing the rifle contracts; "I do not hold a brief for the defense of any man connected with the Government, for the defense of any man that makes one of these contracts or for any commission. I know very few of them. I think I need not assure the House when I make that statement that I do not know or even recall the names of the three concerns that got these contracts for the manufacture of rifles. Now, you speak of these parties that have the contracts for the rifles. They might have been commandeered, the Government might have taken possession, making compensation, if you please, for the plants, sending the owners thereof to the courts. If we had followed that policy, you could see at once that the Government, now having its hands full, would have been swamped, because to undertake to make explosives, to construct such heavy and light artillery, to manufacture clothing, if it was all thrown on the Government, if you had commandeered the whole thing, you would have absolutely swamped it. So we had to do the practical thing.

"I never was inside of a factory that made rifles, and I suppose I never will be. I am a tenderfoot, but

I do know as an individual that when you take the whole of a plant, when it loses its ordinary business and you set it at work for six or twelve months upon something else, it throws it out of joint. I know that the investment in the plant depreciates. It is said that it depreciates 6 per cent. But after all, when the contract is completed, I undertake to say that while there is some guess as to this or that or the other, with these great concerns on their hands with all that means, under all the circumstances I would not give one-half of the investment for it."

May Be Modified

In spite of reports to the contrary, there is every reason to believe that the Congressional leaders will resist all attempts that may be made at this session to restrict the use of the cost-plus contract. They take the position that, whether or not it may be practicable to work out a better system of purchasing, it is not possible to develop it in time for its utilization in connection with the appropriations now being voted. There is no doubt, however, that the vigorous discussion of the matter in Congress will put the executive departments on their mettle to supervise more closely manufacturers operating under these contracts and instructions have already been issued to the various cost accounting bureaus to give the closest possible scrutiny to all items of expense and to freely invoke the Government's right to veto extravagant expenditures. Several of the bureaus are seeking to devise new safeguards for use in the cost-plus contract which may now be said to be in a process of evolution that may develop a much less objectionable form.

W. L. C.

Women in Iron and Steel Works

Replying to the question, "Should Women Be Employed in the Iron and Steel Trades?" W. T. Griffiths, a rolling mill operator, says in the *London Iron and Coal Trades Review* that the absolute necessity of such an innovation in British works has yet to be demonstrated. As far as his own experience guides him and the instances that have come under his direct observation, where women have been engaged in men's work—wheeling scale from rolls to furnaces, wheeling sand, wheeling and cutting scrap at shears and work of such character—he hastens to the conclusion that their introduction into the trade should be a last resort. He is convinced that it is not good for the women themselves, not good for the trade and not good for the State. The atmosphere and the general surroundings of iron and steel works are anything but conducive to the better and brighter side of social life; therefore personally he would strenuously oppose any developments toward bringing more women into the iron and steel trades until at least the surplus male labor has been exhausted in the trade itself from outside the manufacturing departments.

More Open Hearth Furnaces

The Bethlehem Steel Co. is planning for the erection of 13 open-hearth furnaces at its Colebrook plant, Lebanon, Pa. The installation will consist of a new 700-ft. extension for the open-hearth department. The company has commenced the construction of an addition to its local concentrator plant to more than double the present capacity.

Charles Townley, assistant to the president of the Westinghouse Electric & Mfg. Co., in an address before the Chester, Pa., Rotary Club, said that on Jan. 1, 1918, 5000 men would be employed at the new plant at Essington, which covers 14 acres, and that by the middle of the year 22,000 men would be employed. Steam machinery appliances, principally turbines for ships building along the Delaware River, will be the first output of the plant.

The Thor Iron Works, Bathurst Street, Toronto, is having plans prepared for the erection of a steel plant on Ashbridges Bay to cost \$75,000, to be of reinforced concrete and brick construction.

BLOWING ENGINE VALVES

Installation of Blowing Units Remodeled to Meet Increased Furnace Production

TO increase capacities of existing blowing engines the Mesta Machine Co., Pittsburgh, has fitted them with the Iversen valves on the air ends. The former

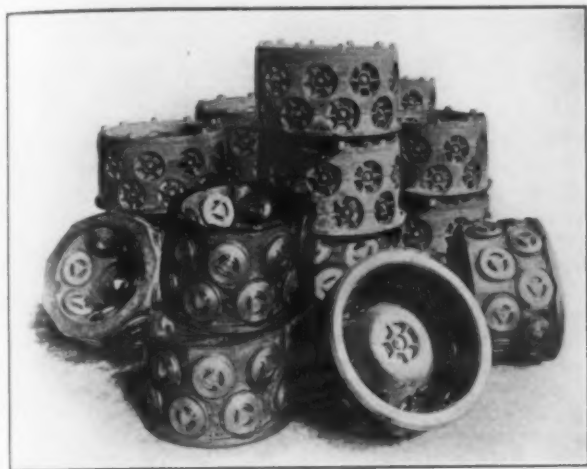


Plate Valves in Cages Are Used to Replace Large Poppet Valves, the cages being removed for repairs and replaced by spares

custom of blowing a furnace with three or four tubs, it holds, has given way to the present possibility of blowing a furnace with two, say, 84-in. diameter air cylinders equipped with these valves. Remodeling blowing engines is, in some cases, limited to the simple replacing of existing valves by automatic plate valves. In other instances it requires removing old cylinder heads, replacing them by heads containing plate valves, and in extreme cases, the removal of the whole air cylinder.

A method of employing plate valves is shown in the illustration. The plate valves are in cages and take the place of large poppet valves, originally operating in the head. The cages are dished to reduce clearance. In many cases the clearance volume, it is stated, is made smaller than it was with the original valves, while in other cases it is increased slightly, depending on the type of valves replaced. The advantages gained by the instantaneous opening of the valves and the large area secured are held to compensate for slight increases in clearance volumes. The removal of one cover plate exposes all outlet valves of the cage to inspection on the delivery side. As the inlet cages are made in two parts, the removal of one cover and the top of a cage exposes all the valves of that cage to inspection. When a valve breaks the whole cage can be removed and replaced by a spare one.

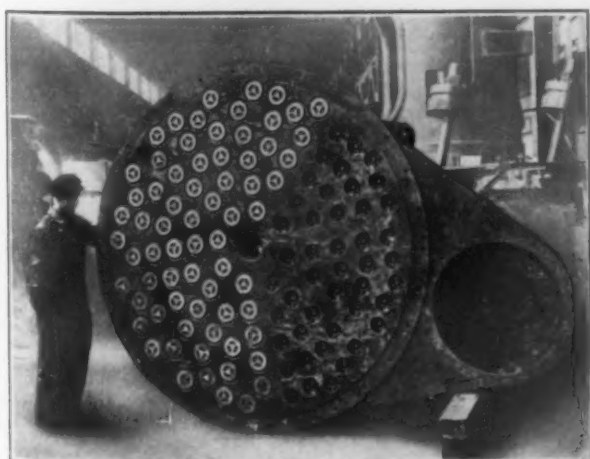


Plate Valves Installed in Place of Existing Valves in the Head, a Practice Recommended Where Leather Valves Are in Use

An illustration of the method of installing valves in place of existing valves in the head is also shown. This method as a rule gives some increase in valve area, so it is claimed, but not enough to warrant increasing the speed of the engine materially. It is recommended particularly in the case of old blowing engines equipped with leather valves. Replacing old air has been found necessary only occasionally.

Refractories for Steel Furnaces

Discussing a paper on "Refractories for Steel Furnaces," which was presented recently before the refractory materials section of the Ceramic Society (British), W. J. Jones of the Ministry of Munitions, refractory materials department, pointed out that the shortcoming of those engaged in manufacturing refractory products should not be put down entirely to culpable indifference or negligence. Since the war commenced the demand for silica bricks has increased very considerably. Moreover, many of the men who were getting ganister had joined the colors and their successors could not expect to show the same results as those with experience. Bricks might be the same in chemical analysis, but not in physical properties. Material containing 98 per cent silica was not suitable for making bricks and no practical silica brickmaker would think of using such material. Before the war a few magnesite bricks were obtained from Norway and these were fairly high in silica. Probably the loss of half the weight in calcining was the cause of no serious attempt being made to produce magnesite bricks for so long a period. He agreed with the suggestion for close intercourse between makers, users and scientists. The effort should be national and concerted with one co-ordinating center presided over by Dr. Mellor, and a number of other centers, such as Sheffield, Glasgow, South Wales, Birmingham, etc., each dealing with different questions.

Arthur G. McKee & Co., Cleveland, have taken the engineering contract for the stove fittings, stoves, skip bridge, top and skip cars for the new blast furnace to be built by the Brier Hill Steel Co., Youngstown, Ohio. This firm will furnish the distributor and stove fittings for the stack. Other contracts taken recently by this firm are as follows: Power plant for the Cleveland Cliffs Iron Co. at Gladstone, Mich.; work for the American Manganese Mfg. Co., Dunbar, Pa., including the completion of a tunnel system, putting a skip and top on furnace No. 1, and furnishing a distributor for furnace No. 2; completion of bin system and erection of skip hoist and top for the Ironton, Ohio, stack of the Marting Iron & Steel Co.; new steel and concrete bins for the Culbertson, Ohio, plant of this company; complete new pig machine for the Columbus, Ohio, plant of the American Rolling Mill Co., and coal brakers, coal and ash conveying equipment, stokers, feeders, etc., for the Cleveland plant of the American Shipbuilding Co.

New interests are to become identified with the Gillette Safety Razor Co., Boston. They include H. J. Fuller, vice-president Fairbanks, Morse & Co., New York; Philip Stockton, president Old Colony Trust Co., Boston; J. E. Aldred, Aldred & Co., New York; R. C. Morse, Jackson & Curtis, Boston, and Bradley W. Palmer, Storey, Thorndike, Palmer & Dodge, Boston. The company will be reincorporated and the new capitalization will comprise \$6,000,000 five-year notes and 190,000 shares of capital stock without par value. During the first eight months of this year, the net earnings of the company were at the rate of \$4,500,000 a year. The present management will be retained.

The Marlin-Rockwell Corporation, New Haven, Conn., which has been preparing an aviation field for testing the Barlow aerial bombs which it is manufacturing, conducted its first test Sept. 12 with five bombs, which were dropped from an aeroplane on the salt meadows near New Haven. The test was declared successful.

EXPORTS STILL DECLINING

Effects of Embargo Shown—President Using Club with Good Effect

WASHINGTON, Sept. 25.—Advance information from the principal ports of exit indicates a further substantial decline in exports of iron and steel in August, due chiefly to the operation of the embargo imposed by the Exports Council. This check upon shipments is now two-fold, the general embargo of July 15 relating to many important items of iron and steel having been further tightened by the ruling promulgated last week imposing drastic restrictions on the exportation of articles the conservation of which in the United States for war purposes is regarded as of the utmost importance.

Exports of shapes and plates for shipbuilding purposes have been cut down under the original embargo, and while negotiations have been on foot for several weeks between the diplomatic representatives of Japan and several neutral countries and the State Department, no adjustment has yet been reached for a systematic relaxation of the export prohibition, although in certain specific instances small quantities of shapes and plates identified as intended for warship construction have been licensed. The Japanese Government is manifesting an earnest desire to co-operate with the United States in meeting the submarine problem and in solving the difficulties of transporting troops, food and munitions to France. Definite promises have been made that a considerable tonnage of Japanese ships will be transferred to the Atlantic and operated in accordance with the desires of the United States Government. The Japanese Ambassador is anxious to secure a very broad dispensation permitting the free shipment to Japan of shapes and plates for the construction not only of warships but of cargo vessels and is seeking a practical waiver of the embargo, but while the State Department is willing to permit steel shipbuilding material to be sent to Japan in quantity commensurate with the aid afforded by the Japanese Government in meeting the transportation situation in the Atlantic, there is no intention of lifting the embargo or making any wholesale exceptions to its provisions.

Officials of the Administration are highly gratified with the practical effect of the work of the Exports Council. The dominating position of the United States as a great manufacturing country to which all the nations of the earth have come to look for important products has never been so fully realized as since Congress placed in the hands of the President the club which he is now so vigorously wielding to secure co-operation in the conduct of the war. Official reports indicate that indirect shipments of goods to the enemy have been reduced to negligible proportions and that exports from the United States of all kinds of merchandise are now reaching the people who really need them and who are helping in the great struggle for democracy. Neither the President nor his advisers have any thought of weakening the power of this weapon by a general relaxation of the embargo restriction; on the contrary, every atom of information that can be obtained is being utilized to strengthen the position of the United States and to insure the worldwide distribution of its products with the greatest possible intelligence.

The Exports Administrative Board has promulgated a new application form "A-2" for ordinary export licenses which must be executed by shippers. It has also, as a result of a large number of inquiries, found it necessary to elaborate the list of articles for the exportation of which licenses are now required, and a new category has been prepared, in alphabetical order, for the convenience of shippers. Many articles appear twice in this new list, steel articles, for example, being enumerated alphabetically in addition to being specified under the general head of "steel." The list may be obtained by writing to this board or the branch office, 11 Broadway, New York.

It is stated at the headquarters of the Bureau of

Export licenses that the work of issuing licenses has been brought up to date and that the time required for passing on applications now averages not more than two or three days. Following the President's proclamation of Aug. 27 there was a large accumulation of applications for licenses for goods which were not included in the restricted list and which were forwarded through a misunderstanding on the part of shippers as to the scope of the proclamation. These arrears have been cleared up and the work is now up to date.

British Government Curbs Electric Steel Development

The British Ministry of Munitions has prohibited the further installation of electric furnaces in Great Britain, except under permit. Permission to proceed with a number of furnaces ordered before the prohibition came into force has also been withheld. The reasons given are scarcity of labor, materials, electrodes and electric current as well as the non-essentiality of such plant for war purposes.

Discussing the new order, the London Ironmonger says that "it is threatening to bring to a standstill, or nearly so, the development of electric steel making, which has lately made such astonishing progress in this country, and thereby to injure seriously the future welfare of the British steel industry. The leading authorities are agreed that electric steel is destined to play a part of enormous importance, and a country which fails to prepare for the new conditions must therefore be grievously handicapped in competition with more far-seeing rivals. In Great Britain very little had been done to develop the manufacture of electric steel prior to the war and Germany was easily first among the great industrial nations in the production of this material. Since 1914 the United States had gone ahead at such a pace that she had already surpassed the German output, and many furnaces are still being built in America. Britain took up the industry 18 months ago with a most promising vigor and until our Government applied the brake there seemed every probability that we would in due course catch up with our rivals.

"The prohibition is not absolute but dissatisfaction is felt with the manner in which the applications for permits are dealt and it is alleged that there is inconsistency in the decisions taken in reply to applications for permits. It must be admitted in fairness that the task of those who are responsible for carrying out the order is one of great delicacy, owing to the difficulty of making sure whether the erection of an electric furnace will be an advantage to the country or otherwise in the present circumstances. But the position now taken by the authorities contains possibilities of injustice to firms whose applications are rejected, for such firms may be seriously handicapped in competition with more fortunate rivals, who will be enabled to get a long way ahead in supplying the future demand for electric steel.

"The claims of the nation at war must necessarily involve many individual hardships which must be borne willingly, but in this matter it is not only the interests of the individual but those of the country as a whole that are at stake. In carrying out schemes for controlling manufacture it is possible to commit errors that may cripple industry in the future and seriously injure the restoration of national finances. In the coming reconstruction a prosperous steel trade is of prime importance and if electric steel is essential to this prosperity, every encouragement should be given to the installation of the necessary plant now. If the work is deferred until peace arrives it may be too late, as other countries will be in a position to snatch the trade in electric steel which is awaiting us before our own manufacturers are able to deal with it."

The Governor General in Council, Ottawa, Canada, under the provisions of section 242 and 291 of the customs act, has ordered that the exportation of cast scrap iron from Canada is prohibited to all destinations abroad except to the United Kingdom, British possessions and protectorates.

Germany's Foreign Trade Organization Now Busy on Post-War Business

An important report on German foreign trade organization has been issued by the U. S. Bureau of Foreign and Domestic Commerce at Washington, written by Chauncey D. Snow, assistant chief of the Bureau. Mr. Snow was in Germany when the war broke out, investigating industrial conditions. He has made use of original material based on personal contact with the German organization and methods of commerce and those of other countries.

The report sets forth the development of the German export trade, the systematic organization of German commercial education, the promotion of trade by the German settlements in foreign countries; the German banking and shipping facilities, trade-promoting agencies and trade associations and the painstaking cultivation of foreign markets. Detailed statistics of German trade, general statistics dealing with Germany and extracts, chiefly from official reports, describing German trade methods are presented in appendices. In an introductory statement it is pointed out that:

The German point of view with regard to foreign trade and the German system of education for foreign trade are distinctive. The German banking and transportation systems are referred to as well-known factors in the development of the country's foreign trade. In connection with the technique of actual export shipments, it may be pointed out that this or that large American corporation with long experience in exporting uses this or that admirable method, in which it was perhaps a pioneer. Probably few phases of German export science might not be proved to be known and practiced by individual concerns in the United States. But such scientific organization is the exception in the United States; in Germany it is the rule. That fact justifies placing it under the heading of German methods.

The cosmopolitan point of view that has been acquired by the German trader is emphasized. The facts in Teutonic commercial history show how thorough are the methods that have been employed for more than half a century and how earnestly that nation is preparing to reach out into the world markets as soon as the war is ended.

"In looking to the future," states the Bureau, "the United States has many of the same problems as Germany and the other warring nations. Like the German exporters, the American exporters have to face a period of sharp business competition in foreign countries such as probably has never before been met. In Germany the individual business man, all the local and great national associations of business men and the Government departments are even now strenuously occupied with the problems that must be worked out. The American business men's associations and the Government departments are alive to the importance of these matters and upon their individual and co-operative efforts through the coming critical years will depend in a large measure the nation's future in international commerce."

Rolling Iron Sheet Bars

The Wilkes Rolling Mill, Sharon, Pa., idle for several years, is now rolling iron sheet bars, and is prepared to book orders for iron roofing sheets of No. 14 to 28 gauge. Henry F. Gilg, 207 Fulton Building, Pittsburgh, is in charge of sales.

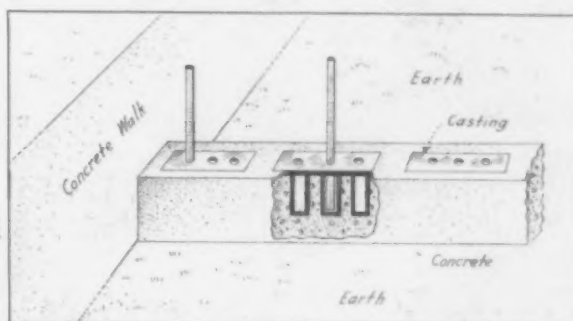
A large German museum on the Kirchenfeld at Berne, Switzerland, is being built by the German Work Association (Werkverbund), according to a Swiss paper. The museum is intended for the permanent exhibition of models and samples of German industry in order to push the sale of German goods in Switzerland. The German Legation at Berne has subscribed about \$60,000 toward the necessary funds.

The Bethlehem Steel Co., Steelton, Pa., is planning to increase the capacity of its local furnaces from 45,000 to about 70,000 tons a month. The company is also enlarging its Sparrows Point, Md., works to provide increased output.

NOW DRAWING STEEL AT GARY

Union Drawn Steel Co. Has Its New Plant in Partial Operation.

THE Union Drawn Steel Co., the parent plant of which is at Beaver Falls, Pa., has in partial operation its new plant at Gary, Ind., the only one of its kind in that state. It is located in East Fifth avenue, and consists of three buildings, the main structure, 150 x 456 ft., containing the finishing department, one where the rough stock is cleaned by a pickling process, a large department for the storage of rough stock, a wire department and a tool room and machine shop. In addition there is a power house, 50 x 100 ft., and a transformer house, the last named now needed for the reason that the company is buying its electricity. At present the plant is concentrating on cold-die rolled steel, but at no distant day special shapes and wire will be drawn, the machinery for the latter already being in-



Bases of Cast Iron Imbedded in Concrete Admit Bars for Holding Rough Stock in Storage

stalled. When in full operation the plant will employ between 500 and 600 men.

The buildings are of steel and brick, the main structure having transverse monitors and a roof of cement slabs, all obviously fireproof. Like most modern shops, the side walls consist largely of glass. The travelling cranes, of which there are several, were supplied by the Shaw Electric Crane Co. In the finishing department there are two 10-ton travelling cranes and one 5-ton. In the pickling room is a 10-ton crane, while that in the stock room is of 15 tons capacity. A monorail system is to be installed in the finishing department. The flooring in this department is of creosoted wood blocks.

When fully equipped the plant will have seven machines for the drawing of rounds and other regular and special shapes, and five single and one double machine for drawing wire, as well as equipment for turning shafting, cold rolling, straightening, etc., most of it designed by the company's own engineers. The material used is obtained principally from the Gary Works of the Illinois Steel Co. Shafting 2½-in. and larger is usually open-hearth steel and screw cutting stock is Bessemer because of its free cutting qualities. It is in demand for other purposes also, especially automobile work. The larger sizes of shafting are usually turned, likewise piston rods. The wire department is equipped to draw wire ½ in. and smaller.

A feature of the cleaning room, where the rough stock is immersed in long vats containing a hot acid solution to remove scale preliminary to drawing, is contained in the heating system. The atmosphere of this room is extremely humid because of the steam which arises from the acid bath, and condensation on the ceiling must be guarded against. Should the steam condense it would eventually fall in drops and injure the stock by causing acid spots after the steel has been cleaned and is ready for finishing. The ceiling is of wood. The desired result is obtained by heating the room with warm air from a blower system, the air being admitted to the room through circular openings placed at intervals along the longitudinal center of the ceiling. In the ceiling, at the sides, are rectangular openings for ventilating, these openings, however, extending several feet before the outer air is reached. The installation is yet to be tested by severe cold weather.

In the large room where rough stock is stored is an

HUGE FLOATING CRANE

Lifted 200 Tons at 105 Ft. Radius—For Norfolk Navy Yard



interesting arrangement for economizing space and keeping the various sizes of material in their respective piles. Set in concrete are rectangular cast-iron plates, each having on one side what somewhat resembles the hubs of flange couplings, the hubs, in this case, extending from one common plate or surface. Through these hubs—3 to each casting—are holes about 4 in. in diameter. In position, the hubs, to call them that, are imbedded in the concrete. The castings are placed near enough together to form a continuous row of holes, and in these are placed upright $3\frac{1}{4}$ -in. bars of various lengths. The height and width of the bins can thus be altered at will. Between the stock piles are cement walks. It may be noted that the system is one that can be used wherever bars, pipe or rods are stored.

Beneath the finishing department is a large, light basement with a concrete floor, wherein are contained the motors and power transmission machinery required for operating the drawing machines, etc., on the floor above. Electricity, steam and water are conveyed to the main building from the power house through a tunnel of sufficient height to enable a man to walk. Also in the basement is the blower, a large supply room, a wash room for the employees and an electrical control board. The main floor is supported by pillars of reinforced concrete, these being placed more closely together at one end of the basement to support the finished material which is stored on racks on the floor overhead. The placing of the power equipment in the basement gives the shop a singularly open and unobstructed appearance, aside from eliminating much noise in the shop.

In view of the plant being the first of its kind in Gary it was recognized that difficulty would be encountered in obtaining employees capable of directing operations, and for this reason each department is headed by a foreman who was brought from the East. The superintendent, Oliver W. Thompson, and the master mechanic, H. M. Aley, are Eastern men also.

The products of the new plant will eventually include all those manufactured by the company at its Beaver Falls plant, namely, shafting, piston and pump rods, screw steel, flats, squares, hexagons, sheets and shapes of Bessemer open-hearth and crucible steel.

Albert M. Allen, Cleveland, Ohio, architect, designed and supervised the construction of the plant, which represents an investment of about \$1,000,000.

A FLOATING crane, the largest lifting crane ever constructed in the United States, and the first large rotating pontoon crane ever built in this country, was placed in operation a few days ago at the Norfolk, Va., navy yard. This crane was designed and built by the Wellman-Seaver-Morgan Co., Cleveland, which has built three other large floating cranes for the Navy Department, but none as large as this. The previously built cranes have been of the bridge type in which the whole crane with its boat are turned to bring the hoisting cables to the proper position for lifting loads.

The builder is particularly gratified that the crane withstood successfully the Government tests, because a crane of similar type, it will be recalled, purchased in Germany about four years ago by the Isthmian Canal Commission collapsed and was wrecked under a similar test load, because, it is claimed, of the faulty design of the structure. There were two or three American bidders for the two Panama pontoon cranes of the same capacity as the one just built, one of these being the Wellman-Seaver-Morgan Co., but the contract was awarded to the German competitor. The design of the Norfolk crane proved so satisfactory that it was not found necessary to make any changes in a second crane of this type now being built.

The Norfolk crane has a capacity of 150 gross tons, although the test load required by the Navy Department, which it successfully handled, was 403,200 lb. at a reach of 62 ft. 6 in. over the side of the pontoon, or at a radius of 105 ft. from the center of the boat. The crane rotates in a complete circle, the rotating ring being 22 ft. in diameter. The fixed tower on which the crane rotates is 44 ft. in height. Power for rotating is supplied by two 60-hp. motors.

The crane has a main hoist consisting of two hoisting units of 75 tons capacity each fixed on the boom and an auxiliary hoist of 25 tons capacity movable up and down the boom and having a travel of 107 ft. The two main hoisting units can operate separately or together simultaneously as desired. For handling a load of 75 tons or under either main hoist is used. For handling a larger load the two main hoisting blocks are connected by means of an equalizer carrying a 150-ton hook. Power for the main hoist is supplied by two 60-hp. motors, both of which are of course used when lifting the maximum load. The auxiliary hoist has two motors, one for hoisting and the other for traveling up

and down the boom, each motor being of 60 hp. capacity.

The boom, which is 135 ft. long luffs up and down from a practically vertical position to an angle of about 30 deg. from the horizontal in its lowest position. The luffing is accomplished by two 10-in. screws operated by two 60-hp. motors. The main pivotal bearing or step bearing supports a ball or universal joint and carries a maximum load of 2,021,000 lb.

The speed of the main hoist under a maximum load is about 6 ft. per minute. The speed of the auxiliary hoist is 30 ft. per minute. The rotating speed is one revolution in 4 min. The boom is luffed from one to the other extreme position in 12 min. During the tests all the speeds of the crane were in an excess of the requirements of the specifications, and the side and end lists were both under the specified limits. The maximum side lists were specified at 6 deg.

The machinery except the power plant and control equipment is located in a machinery house at the back end of the rotating frame, this house extending down to near the bottom of the tower and rotating with the crane, is weight counterbalancing the crane.

The pontoon is 140 ft. long, 85 ft. wide, and 16 ft. deep. This is provided with a power plant, including boilers and an engine generator of 150 kw. capacity, that supplies the electric current for operating the crane. A fixed weight of 600,000 lb. is provided in the pontoon at the aft end of the crane as a counterbalance. The various movements of the crane are controlled by one operator by means of levers and master controllers from an operator's cage mounted above the deck on the rotating structure. A dynamic breaking system is applied to all motors. Safety features and accuracy of control are essential as the crane is used to handle large guns and turrets on battleships which might be seriously damaged by handling with equipment not provided with every safeguard possible.

The capstans, one at each corner of the pontoon, are electrically driven. There are two steam driven anchor hoists, one at each end of the pontoon. The total displacement of the crane is 5,000,000 lb. When raised to its maximum height the boom is over 200 ft. above the water level. The lifting hooks alone weigh about 2 tons. About 5000 tons of steel was required to build the superstructure including the crane and its tower.

A description of the Panama cranes and a view of the general character of construction were given in THE IRON AGE of May 15, 1913.

Exports of Manufactured Articles Increased

Seventy-eight per cent of the more than six billion dollars' worth of American goods exported in the fiscal year 1917 consisted of wholly or partly manufactured goods. In 1914, the last normal year before the war, the percentage of such goods exported was only 59, according to a statement just issued by the Bureau of Foreign and Domestic Commerce, of the Department of Commerce.

In 1914 exports of manufactures ready for consumption were valued at \$724,908,000, or 31 per cent of the total exports, while in 1917 their value reached \$2,943,923,212, or 47 per cent of the total. Manufactures for further use in manufacturing were exported in 1914 to the value of \$374,224,210, or 16 per cent of the total, whereas \$1,191,787,957 worth, or 19 per cent of the total, was exported in 1917. The exports of foodstuffs partly or wholly manufactured amounted to \$293,218,336 in 1914, or 12½ per cent of the total, and in 1917 to \$739,037,884, or 12 per cent of the total.

The following are some of the principal articles classed as partly or wholly manufactured which show increased exports in 1917 as compared with 1914:

Articles and Classes	Twelve Months Ended June—	
	1917	1914
Iron and steel manufactures..	\$1,129,341,616	\$251,480,677
Explosives	802,789,437	6,272,197
Brass manufactures	383,291,964	7,472,476
Copper manufactures.....	322,284,174	146,222,556
Chemicals, dyes, etc.....	182,040,380	22,714,611
Cars, autos, etc.....	166,504,339	51,676,222
Zinc manufactures	66,108,586	406,208
Electrical machinery, etc.....	52,158,773	25,060,844
Lead manufactures	16,563,290	4,122,007

A new process which lowers the cost of making low-grade concentrates of molybdenite is reported as having been discovered by the staff of the mining department of the University of Toronto. It is hoped that it will render available the deposits of low-grade ore which have been discovered in Manitoba and British Columbia.

Because of the difficulty in securing coal promptly and the high prices existing at present, the Central Iron & Steel Co., Harrisburg, Pa., is arranging to use river coal almost exclusively by the use of blowers. The company operates a small coal fleet and recently purchased another one to be used in dredging for the supply.



The Pontoon Crane Lifting 150 Tons of Armor Plate

Government's Rifle Contracts Defended

Text of Those Made With the Winchester and Remington Companies and Chairman Scott's Analysis of Profit Features

WASHINGTON, Sept. 24.—The House Committee on Military Affairs yesterday began a comprehensive investigation of the defective ammunition produced at the Frankford arsenal and shipped to the American troops in France. The special board appointed by the Secretary of War at the instance of General Crozier, chief of the Ordnance Bureau, to sift the ammunition trouble, is planning a thorough technical investigation not only of manufacturing methods at Frankford, but the latest practice at the plants of private manufacturers throughout the country.

The most important development of the week, however, is a series of disclosures concerning the rifle contracts between the Ordnance Bureau and the Remington and Winchester companies made in the fourth of this interesting series of investigations by the House Appropriations Committee, which has examined at great length Chairman Frank A. Scott of the War Industries Board who approved these contracts and General Crozier, who signed them on behalf of the department. The correspondent of *THE IRON AGE* is able to present the text of one of the contracts, which will be examined by manufacturers with unusual interest as typical of the purchasing agreements now being made by the War Department with the co-operation and approval of the War Industries Board.

The Winchester and Remington Contracts

The contracts made by the War Department with the Remington and Winchester companies for 1,000,000 Lee-Enfield rifles have been the subject of much criticism in Congress, where, although the details of the contracts were unknown, it was commonly understood that they would result in a net profit to the manufacturers of approximately \$4,000,000 with less than the risks usually encountered by manufacturers. When, therefore, the last big budget bill, which has now reached a total of more than \$7,000,000,000, was taken up by the House Committee on Appropriations, Chairman Fitzgerald and Assistant Chairman Sherley called upon the War Department to furnish copies of the contracts in question and summoned General Crozier and Chairman Frank A. Scott of the War Industries Board to explain their provisions and the considerations that induced the department to enter into them. Contracts were thereupon forwarded by the Secretary of War covering the department's agreements with the Remington Arms Co., the Remington Arms-Union Metallic Cartridge Co. and the Winchester Repeating Arms Co. These provide that the work shall be done on the basis of cost plus a 10 per cent profit and are practically identical, except that the agreement with the Remington Arms Co. stipulates that the Government shall reimburse the contractor as an item of cost outlay for the rental of the plant at Eddystone, Pa., owned by the Baldwin Locomotive Works. In the other contracts it is provided that the Government shall make an allowance of 6 per cent upon the valuation of the plants in lieu of rental. Following are the principal articles in the agreement with the Remington Arms Co., article 9 being elided for military reasons:

Article 1. The contracting officer will arrange with the British Government for the continued use by the contractor, for the purpose of manufacturing rifles under this agreement, of the machinery, tools, equipment, and appliances which will, at the time of the completion of the manufacture of rifles for the British Government by the contractor, under the terms of a certain written agreement bearing date Dec. 30, 1916, become the property of the British Government under the terms of the aforesaid agreement between the contractor and that Government. The contracting officer will secure to the contractor the right to the use thereof without cost or charge, or liability for, use of, damage to, or loss or destruction thereof.

Article 2. The contractor will make the necessary outlays in advance, and manufacture and supply in conformity with

the aforesaid drawings and specifications, including duly authorized changes therein, 475,000 rifles, and such spare parts as may be required by the contracting officer during the period in which rifles are manufactured hereunder, and will supply said rifles packed for shipment at the contractor's works.

Article 3. The manufacture of said rifles (the word "rifle" as used in this contract being intended to include everything covered by the drawings and specifications above referred to) shall conform in all respects to and with said drawings and specifications, including duly authorized changes therein, all of which are to be deemed and taken as forming a part of this contract with like operation and effect as if the same were incorporated herein. The contracting officer is expressly authorized from time to time, by notice in writing to the contractor, to make such changes in the drawings and specifications and such additions thereto as he may deem advisable.

Article 4. (a) The contracting officer may arrange to secure and to supply to the contractor for use in the manufacture hereunder the material, raw and in course of manufacture, on hand at the plant of the contractor as property of the British Government.

(b) The contracting officer may purchase and supply to the contractor any part of or all material, appliances, equipment, or other personal property of whatsoever nature required for the manufacture of said rifles.

(c) The contractor will from time to time, except as otherwise provided, purchase or contract for the purchase of all materials, tools, equipment, or other personal property of whatsoever nature required for the manufacture of said rifles, and upon such terms as appear to the contractor to be reasonable.

(d) The contractor may supply or furnish for use in such manufacture at the option of the contracting officer all materials, tools, equipment, or other personal property of whatever nature of a consumable character required for the manufacture of said rifles owned by it and not purchased for use in the manufacture of rifles hereunder, and that in case the contractor shall so furnish such material, tools, equipment, or other personal property, the book value of the same at the time furnished shall be treated as an expenditure of the contractor in the performance of this contract and considered as a part of the cost of manufacture.

(e) Immediately upon the execution of this contract the parties hereto shall confer for the purpose of determining what material will be required to complete this contract, taking into consideration the material referred to in subtitles (a), (b), (c), and (d) of article 4 of this contract, with a view to providing for such material as may be necessary to cover the entire requirements under the contract.

Article 5. The materials to be used in the manufacture of these rifles shall be of quality and characteristics acceptable for the various purposes for which they may be used, and shall conform to the specifications forming a part of this contract. The materials and workmanship used and applied in the manufacture of these rifles in details and finish in all their parts shall be of the prescribed quality and shall, from the beginning to the end of the work, be subject to the inspection of the contracting officer, who may appoint suitable inspectors to whom the contractor shall furnish such samples of said materials and such information as to quality thereof and the manner of using the same, as may be required, and also any assistance such inspectors may require in determining the character of workmanship applied, and the quality of the materials, either used or intended for use in the manufacture of the rifles, and that the inspectors may, with the approval of the contracting officer, peremptorily reject any unfit workmanship or material or forbid the use thereof. The inspectors shall at all times during the progress of the work have full access thereto, and the contractor shall furnish them with full facilities for the inspection and superintendence of the same.

Article 6. When and to the extent requested by the contracting officer, the contractor will procure such liability insurance and such insurance in addition to that regularly carried by the contractor, as may be lawfully procured against loss or damage to property.

No deduction from any payment to be made to the contractor hereunder shall be made because of depreciation or loss of or destruction or damage done to the machinery, tools, equipment, appliances, materials, or supplies furnished by the Government for use in such manufacture, nor for any loss, destruction, or damage done to any raw material, manufactured material, material in process of manufacture, rifles in

process of manufacture, manufactured rifles, or any other personal property at any time acquired by the contractor under the terms of this agreement for use in the manufacture of the rifles, whether such damage or destruction be occasioned by fire, flood, storm, riot, vandalism, any acts of God, acts of war, or other casualties, and whether while such property is at the plant or in course of transportation.

Article 7. Unless prevented by strikes, the work under this contract shall be prosecuted at all times with the utmost vigor and dispatch, without interruption for any cause within the control of the contractor, and the number and class of men engaged on the contract and hours of work, subject to the limitations imposed by law, shall be subject to the approval and direction of the contracting officer.

Article 8. No laborer or mechanic doing any part of the work contemplated by this contract in the employ of the contractor, or any subcontractor contracting for any part of said work contemplated, shall be required or be permitted to work more than eight hours in any one calendar day upon such work, such prohibition being in accordance with the act approved June 19, 1912, limiting the hours of daily service of mechanics and laborers on work under contracts to which the United States is a party. For each violation of the requirements of this article a penalty of \$5 shall be imposed upon the contractor for each laborer or mechanic for every calendar day in which said employee is required or permitted to labor more than eight hours upon said work, and all penalties thus imposed shall be withheld for the use and benefit of the United States: Provided, that this article shall not be enforced nor shall any penalty be enacted in case such violation shall occur while there is in effect any Executive order suspending the provisions of said act approved June 19, 1912, or waiving the provisions and stipulations thereof with respect to either this contract or any class of contracts in which this contract shall be included, or when the violation was due to any extraordinary event or conditions of manufacture, or to any emergency caused by fire, famine, or flood by danger to life or property, or by other extraordinary events or conditions on account of which, by subsequent Executive order, such past violation shall have been excused.

This contract is subject to the Executive order issued by the President on March 24, 1917, under authority contained in the naval appropriation act approved March 4, 1917, suspending the provisions of the act approved June 19, 1912, during the pending emergency and until further orders.

Article 9. * * *

Article 10. This contract shall not, nor shall any interest therein, be transferred by the contractor to any other person or persons, and in the performance of this contract no person shall be employed that is under sentence of imprisonment at hard labor.

Article 11. No member of or delegate to Congress or resident commissioner, nor any person belonging to or employed in the military service of the United States is, or shall be, admitted to any share or part of this contract, or to any benefit that may arise therefrom, but under the provisions of section 116 of the act of Congress approved March 4, 1909 (35 Stats., 1109), this stipulation shall not apply, or be construed to apply, to any contract made with an incorporated company for its general benefit.

Article 12. The price to be paid for the rifles to be manufactured and furnished in accordance with this contract, including authorized changes therein, shall be the actual cost, plus 10 per cent for profit. For the purpose of this contract actual cost shall be generally as defined in the revenue bill approved Sept. 8, 1916, section 302, in so far as the requirements of said revenue bill are applicable to and not inconsistent herewith. The accounts and records of the contractors appertaining to this work shall be open at all times to the contracting officer and his representatives, and such statements and returns relative to the expenditures shall be made as are directed by the contracting officer. No change shall be required in the present methods and principles of keeping costs, provided the contracting officer finds them adequate for the determination of actual costs. All information obtained from the contractor's accounts and records shall be treated as confidential.

The actual cost shall include the following, and items similar thereto in principle, it being intended that the contractor shall be fully reimbursed for expenditures actually made in good faith in the performance of this contract:

(a) The cost of materials, supplies, labor, special appliances, jigs, tools, fixtures and gauges made by and for the contractor entering into or in good faith purchased, made, supplied, or acquired for use in the manufacture of the rifles, and other direct charges, such as insurance on rifles, etc.

(b) A proper proportion of running expenses, including ordinary rentals, cost of repairs and maintenance, light, heat, power, insurance, management, salaries and other indirect charges.

(c) A reasonable rate of interest on a proper proportion of the investment in plant, facilities, inventory and working capital not owned or provided by the Government.

(d) A proper proportion of taxes of all kinds paid or accrued with respect to the business or property.

(e) A proper proportion of physical losses actually sustained in connection with the business, including losses from fire, flood, storm, riot, vandalism, any acts of God, acts of war, or other casualties, and not compensated for by insurance or otherwise, and a proper proportion of a reasonable allowance for losses and damages resulting from displacement or from delay in work contracted for prior to the date of this contract caused by or contributed to by work under emergency conditions performed by the contractor for the contracting officer; also, all losses actually sustained in the conduct of the business of manufacturing such rifles on account of death of and personal injury to employees or others to the extent that the same shall not be compensated for by insurance or otherwise.

(f) A reasonable allowance, according to the conditions for the depreciation of values of plant and property.

Article 13. It is understood that the premises and plant of the contractor which will be employed in the manufacture of the rifles are occupied under the lease dated Dec. 30, 1916, of the Baldwin Locomotive Works, a copy of which is hereto attached. Payments which will be required to be made by the contractor to the Baldwin Locomotive Works upon such lease accruing for the period of time which will elapse from the termination of manufacture of rifles for the British Government under contract dated Dec. 30, 1916, to the date of the removal, under the terms of this contract, by the Government, of the materials, appliances, equipment, or other personal property belonging to or removable by it at the termination of this contract, are to be reimbursed and paid the contractor as ordinary rentals within the meaning of the language employed in subparagraph (b) of article 12 hereof. to be reimbursed and paid the contractor as ordinary rentals within the meaning of the language employed in subparagraph (b) of article 12 hereof.

Payments upon these contracts are to be made monthly and all accounts covering cost of production are to be reviewed by a compensation board composed of officers of the U. S. Army. Within 90 days from the termination of the contracts the Government agrees, if desired by the contractor, to remove from the plants the special equipment which the War Department has agreed to purchase from the British Government for the sum of \$9,500,000.

At the hearing before the House Committee on Appropriations General Crozier testified that these contracts will probably result in the production of rifles for the United States at a price substantially lower than that paid by the British Government, notwithstanding the fact that materials and labor have advanced heavily since the work of making rifles for Great Britain was practically completed. The British Government, he said, paid approximately \$43 per rifle, while the United States will probably pay less than \$40 for a better weapon. In reply to suggestions by the committee that cost-plus-profit contracts, such as those made in this instance, are open to numerous objections, General Crozier said:

This kind of contract is subject to the criticisms that have been indicated, and there may not be a perfect answer to them. The reliance that we have is, first, the entrance into the methods of management with the right of control, the right of consent to wages and salaries, and to the prices paid for material; the right to the advantage of any reduction of the price of any class of material that the Government can obtain through any arrangements, such as arrangements with steel producers, copper producers, etc. Now, that still does not cover the general subject of carelessness, the subject of inefficiency, and the subject of expensive operation, because that does not hurt the people conducting the manufactory; but the reliance for protecting the interests of the Government on that score is, first, the reputation of those companies. They are in this business and they will continue in this business; they have been in it for a good many years, except one of them, and that one has been engaged in other similar business. They have their business reputations to maintain and they have got to make their living hereafter. Now, there is a certain character which they have for conducting business efficiently. It is true that they have engaged in some transactions comparatively recently which have not indicated all kinds of efficiency, but I think that such troubles as these companies have had are not traceable to inefficiency in the management of their plants, but they are due to the mistakes of the people who put up the money, generally speaking. So we have hired their demonstrated capacity—a capacity demonstrated over a long series of years. Then, we have a certain rivalry between them.

Those companies are in a way joined together in this

matter with the Government, but we are dealing with them independently. We expect a certain amount of co-operation in production and interchangeability in production to as high a degree as we can get it, and we hope for a friendliness of that kind. But these companies have something at stake, each one as against the other, in making this an efficient and economical manufacturing cost. The manufacturing cost in each plant will be made public. We will make it perfectly well known, and the companies have an interest in not making a discreditable showing with reference to one another. Now, there is another thing which might be a safeguard, and that is that these contracts stipulate that there shall be the right of cancellation at any time the Government chooses to cancel the contracts. We can cancel them at any time.

Why Cost Plus Ten Per Cent

The fact having been developed that Chairman Scott of the War Industries Board, when acting as the head of the old Munitions Board, approved the rifle contracts, the Committee called him to ascertain his views as to the fairness of these agreements from the Government's standpoint. Replying to a question as to how it was determined that 10 per cent of the manufacturers' cost was a reasonable profit under these contracts, Mr. Scott said that the margin was fixed because it was the least percentage that the manufacturers could be induced to accept and that rather than take a lower figure they preferred to have the Government commandeer and operate their plants. "The manufacturers," said Mr. Scott, "were entirely unwilling to make the rifles at any flat price. Each of them had had contracts with the British or Russian Government, on every one of which they had lost money and which they had been compelled to adjust with those governments. They were very much afraid of other business of that kind and were unwilling to enter into any contract for rifles at a fixed price; therefore, the Chief of Ordnance was compelled to make a bargain with those manufacturers on the best basis that he could obtain. That contract, however, will produce for this Government rifles at a lower cost than the rifles that have been acquired by any government participating in this war."

Chairman Fitzgerald called Mr. Scott's attention to the current reports that the allied governments have paid high prices for everything purchased in the United States, to which Mr. Scott replied that enormous increases in material and labor costs have occurred since the Allies began buying. The normal commercial profit on articles like rifles would certainly be considerably in excess of the amount which will be produced by the contracts under examination.

A Simple Lesson in Dividend Figures

Chairman Fitzgerald objected to the allowance of 6 per cent, either as rental or to meet the interest on the money invested in plant, which he said would produce an abnormal profit and drew Mr. Scott's attention to the fact that the Winchester Repeating Arms Co. "for eleven years has been paying dividends of 55 per cent."

"The dividends that the company pays," replied Mr. Scott, "are determined by two factors—its earnings and the amount of its capital stock outstanding. The Winchester Repeating Arms Co., I think, has a capital of \$1,000,000, but it has an investment of many millions of dollars. That investment is used to earn money which is paid in the form of dividends on this \$1,000,000 capital. Assuming, however, that it has an actual investment of \$20,000,000, you can see that 55 per cent of \$1,000,000 in the way of profits makes a very small return upon the actual money in the business."

Profits Not Exorbitant

Chairman Fitzgerald, referring to the fact that at the time these contracts were entered into the Government had no accurate inventories of the plants in question to determine the amount of capital invested, suggested that without such information it would be impossible to determine whether any certain percentage of profit was reasonable. Mr. Scott dissented from this view, however, declaring that because the Government lacked in information referred to and could not tell what the rifles would cost, it was necessary to make cost-plus-profit contracts. "That is the reason why

the Government followed this plan in the construction of cantonments," he said, "because it had no means of determining in advance what a reasonable profit would be. When the Government undertook its building program it did not know where the cantonments were to be built. I think the question to be considered in such cases is, What would be a fair percentage to pay in the way of a profit to any given industry? If you want me to state whether I concur in the opinion of the War Department officials that these are fair contracts and that they will produce rifles at a reasonable price to the Government and not at an exorbitant profit to the manufacturers, I am perfectly willing to say, 'Yes, I do believe that.'"

What Is Organization Worth?

Representative Sherley suggested that if the Remington Arms Co. rented its plant at the expense of the Government and used equipment belonging to the Government, it really furnished nothing and must, therefore, make an exorbitant profit under its contract. Mr. Scott combatted this view. "The most expensive thing which this company has," said he, "is something that costs the most and for which you get back the least, viz., its organization. You pay a great deal in acquiring an organization of the size of any one of these great companies. Looked upon as a business proposition, it will work out that it was an absolute God-send to this country that we had in existence three organizations of the size of the Winchester and Remington companies, with the machinery ready to go on to the manufacture of rifles to fit the American ammunition and which could be produced within a period of less than one year. I believe that if we could get the organization expenses of the plant at Eddystone you would find that it cost perhaps a million dollars or more just to bring together the 10,000 or 15,000 employees of that plant. The transaction as a whole will, in my opinion, be a very desirable one for the Government."

Flat Prices vs. Cost Plus Profit

In debates in Congress during the past week leading members of the Appropriations Committee have defended the action of the Ordnance Bureau in making these rifle contracts. There has been, however, a general tendency to criticize the cost-plus-profit basis of contract for war material and, under the stress of this criticism, a disposition is being manifested by Government officials to employ flat prices wherever possible. It is realized that the cost-plus-profit plan has a strong tendency to raise wages and the prices of materials, the contractor having very little incentive to resist the demands of either workmen or producers of materials. In the case of labor, there being no possible loss to the contractor, every demand for higher wages is quickly conceded for the purpose of keeping the organization intact, and thus the labor market throughout an extensive district may easily be demoralized by the policy of a few Government contractors, working under these cost-plus-profit agreements. In cases where the Government is obliged to induce manufacturers to extend their plants and undertake the manufacture of material involving a large element of risk, such as the production of rifles, artillery, etc., the officials are strongly of the opinion that the cost-plus-profit plan is the only practicable one, and they emphasize especially the fact that wherever pursued it has resulted in expediting deliveries to a very extraordinary degree.

W. L. C.

An instrument for comparing the magnetic properties of two similar pieces of steel has been devised by F. P. Fahy, of the Pennsylvania Railroad Co. An experimental study of this machine is the subject of Scientific Paper No. 306 of the U. S. Bureau of Standards. It is written by Charles W. Burrows and Raymond L. Sanford, associate and assistant physicists, respectively, of the Bureau.

Large deposits of manganese ore, lying on top of the ground, are reported to have been found in the Cypress Hills in South East Alberta.

Floor Drilling Machine Built at Waukegan, Ill.

A drilling machine designed to drill holes 9/16-in. and smaller, shown in the accompanying illustration, is being built by the Waukegan Machine Tool Co., Waukegan, Ill. It is provided with two tables—a square one, which may be swung around the column and tilted at desired angles, and a round one resting in a bracket and vertically adjustable on the column. The round table may be removed and the cup center shown used in the bracket. A block on the side of the square table may be used as a vise. The spindle is provided with a fiber thrust bearing and is counterbalanced by a weight inside column.

The total height of the machine with the spindle in the up position is 6½ ft., and the area of the base is 15 x 17½ in. The vertical adjustment of the head is 7½ in.; the travel of the spindle, which is ¾ in. in diameter, is 3 in., and the distance of the column to the center of the spindle is 7½ in. The distance from the spindle to the square table is 10 in., and from the spindle to the round table 36 in. The round table, which has a diameter of 10 in., has a 20-in. vertical adjustment.



Waukegan 14-in. Floor Drilling Machine

To Stimulate General Building Construction

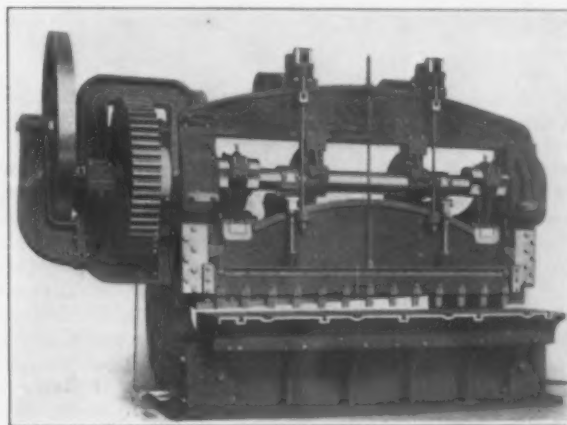
Building interests in New York passed a resolution at a mass meeting held on Thursday afternoon, Sept. 20, at the office of Marcus M. Marks, president of the Borough of Manhattan, to ask Congress to appoint a commissioner of peace industries. The commissioner is to regulate prices if necessary so that business of peaceful industries may continue during the war on a reasonably normal basis. Before the request is to be formally presented, Mr. Marks is to appoint a committee including members of the various building trades, architects, commercial interests and labor organizations to make a detailed study of the building situation and material prices. The conference was called, as noted in these pages last week, at the request of the Building Materials Exchange of New York. According to President Marks the estimated value of new structures for which plans were filed in Manhattan so far this year was \$23,850,000 against over \$100,000,000 in the same period of 1916.

The Chase Metal Works and Chase Rolling Mills, Waterbury, Conn., have discharged about 1000 men as a result of the completion of war orders of the Allies. For the same reason the Scovill Mfg. Co. has laid off some of its working force and it is reported that the same action has been taken by the American Brass Co. The companies expect to put the men back at work on United States Government orders.

At Pittsburgh, the appellate board has granted, until Jan. 1, 54 claims for industrial exemption asked by the Westinghouse Air Brake Co. and the Carnegie Steel Co. for drafted employees in the Wilmerding, Homestead and Braddock local draft districts. The employees exempted are engaged in various departments of steel plants and perform semi-skilled or skilled work.

Large Gate Shear

The accompanying illustration shows the latest type gate shear made by the Long & Allstatter Co., Hamilton, Ohio. The machine is 146 in. wide between the housings and has a throat depth of 30 in. It has an automatic hold-down for clamping and holding the work while it is being cut, but instead of using leaf springs on the hold-down, heavy coil springs are now employed. These have proved satisfactory and have also a longer life, it is said, than the leaf springs. To make the machine rigid for heavy work, it is made with a solid base, instead of with a cut-out. The machine is designed to



Shear 146 In. Wide Between Housings and 30 In. in Throat Depth

cut off 12 ft. sheets and plates up to 1 in. thick, at any length.

The main frame, or housing, as well as the table in front for supporting the work, and the slide and gearing are all made of semi-steel. The cam shaft is made of an open-hearth steel forging, and runs in a cast iron bushing in the head of the machine, with the lower half adjustable. The machine is double geared at the ratio of 14 to 1, and the cam pintles giving movement to the slide are made from steel castings bushed with phosphor bronze. Phosphor bronze gibs are also provided for taking up the wear on the slide. The machine is self-contained, being driven by a 40-hp. motor running at a speed of 850 r.p.m.

Motor-Generator Set with Two Bearings

Two motor-generator sets, embodying departures from usual construction, have been designed and built by the Crocker-Wheeler Co., Ampere, N. J. The sets consist of an 845 kva. 2200-volt 60-cycle three-phase synchronous motor, driving two 250-kw. 125-volt com-



The Elimination of the Outboard Bearings in This Motor-Generator Set Enables the Brushes to Be Adjusted Readily, While the Use of Two Interpole Generators Is Claimed to Provide Flexibility of the Direct-Current Voltage

pound-wound interpole direct-current generators. Only two bearings are used instead of four. The brushes are thus readily accessible for adjustment.

By substituting a three-unit set for a two-unit set having a three-wire generator, it is emphasized that a greater unbalanced overload capacity and greater flexibility of the direct-current voltage are secured.

American Shipbuilding to Decide the War

James A. Farrell on the Part the United States Must Take in Marshalling Transportation and Keeping Up Foreign Trade

President James A. Farrell of the United States Steel Corporation read a paper at the convention of the Chamber of Commerce of the United States at Atlantic City, Friday, Sept. 21, on "Helping to Win the War Through Foreign Trade." The greater part of the address is given below:

Tonnage of 2,500,000 for Transport

"Whatever other contribution we may make to the prosecution of the war, that of ships must be first, because it is only by means of ships that other contributions can be successfully delivered. In the three years that the war has lasted we have been sending more and more of our raw materials, our foodstuffs and our manufactures to countries that are now our allies in the struggle. Our leading industries had undergone substantial reorganization in order to meet the new demands for the production of war material. The demand for tonnage had increased side by side with our increased supply of ships. Thus, there had been produced a situation where our Government had determined to enter the shipping business as an owner, and the newly created Shipping Board was laying its plans for the construction of Government ships. Our first plans call for the transportation of an army of more than 1,000,000 men, involving 2,500,000 tons of shipping, at least, for their transportation, without considering the tonnage required for the maintenance of such a force on foreign soil. As an American army abroad grows in numbers, the demand for tonnage for its maintenance must constantly increase, because these men must be supplied from the home base and cannot depend upon supplies to be drawn from abroad.

Readjustment of Steel Industry

"To meet this situation the United States, through the Shipping Board, has undertaken a colossal program of ship construction, calling for an expenditure of more than a billion dollars, with hundreds of millions more for ships transferred from private ownership or secured in other ways. Here is a new, enormous and imperative demand for steel that must be met. It is a demand which requires a readjustment of the steel business of the nation. Production must be stimulated, as millions of tons will be required for military necessities and the naval and emergency fleet program. New shipyards must be built, and thousands of men selected and trained for the new service as officers and crews of the ships that are to be forthcoming.

"The United States, as may be seen, is definitely launched upon a vast enterprise of shipbuilding on a scale which, in view of the war conditions, calls for the co-operation and support of every department of American industry and of every productive interest in the country. These ships may well be the very means by which the war may be won for us and for our allies. It is through them that we can insure the delivery of our war resources at the point of contact with the enemy. The men for the fighting line, the guns, the rifles and all other materials for them to fight with, food and clothing to keep them in fighting condition—all the elements of our fighting strength—wait for transportation in determining quantities upon these ships.

No Unified Control of Ships

"The United States is called upon to do its share of a tremendous task with a meager merchant marine. It is freely admitted that Great Britain at the outset of the war allowed a vast amount of merchant tonnage to be wasted through lack of centralized power, and it is doubly important that the United States should profit by the lesson by avoiding any such loss in efficiency. Yet, although it was apparently the intention of Con-

gress to concentrate in the Shipping Board all the functions relating to the American merchant marine, there is, as yet, no unified control of tonnage. Vessels are impressed for the navy and held under navy control; vessels are impressed for the army and held under army control. This is precisely what happened in England at the outbreak of the war, and caused an enormous wastage of available tonnage because of the disposition of army and navy commanders to requisition ships at the earliest possible moment and hold them until there remained no possibility of their being further required.

A Lesson from Great Britain

"As a result, many vessels were used for months as warehouses or remained idle, transporting neither troops nor supplies, to the manifest detriment of a commerce which suffered for lack of ships and from the burden of freights which kept mounting on the imports of the foodstuffs and munitions of war upon which England was dependent. It was only after two years of such wastage that the British Government was moved to create a Ministry of Shipping with supreme powers over all tonnage. The methods of this body which have been the product of British experience with a merchant marine many times larger than ours, may be profitably imitated by the United States Shipping Board. So far the Board, as now organized, has shown a marked degree of efficiency in proceeding with its great task, and it is to be hoped that it will adopt such a central and unified control of shipping as will economize tonnage at every possible point to prevent wastage through lack of foresight or conflict of jurisdiction.

Imports Needed for War

"But our fighting resources are not wholly within our control. There are elements of the supply which we have been sending forward in steadily increasing volume that come to us from other sources. Thus, the share of American business in winning the war will not be determined merely by the use we make of materials of native origin; we must make sure of the continued supply of indispensable supplies from other countries. The nitrates from Chile that our farmers must have in order to meet the demand for increased production of foodstuffs, the tin from the Malay Peninsula and Bolivia, the manganese from Brazil, and other like essential materials must have their uninterrupted supply firmly secured, and in every case the need for the complementary exchange of products, direct or indirect, must be met.

Foreign Trade Must Be Maintained

"The experience of our allies has been that the development and maintenance of their war supplies at home has rendered necessary a thorough reorganization of their industry and commerce. From the outset of the struggle there has been a clear recognition in Great Britain of the necessity of maintaining foreign trade at the highest possible standard, not only as a means of insuring the absolutely imperative supplies for the British army and the British people, but also as a not less important means of maintaining British finance and credit.

"The foreign trade of the United States, particularly in exports, has nearly trebled in value since the war began. To the maintenance of this export commerce an assured supply of raw materials is essential. In what may be termed the non-German world, the transactions of international commerce nourish the sinews of war. They bind not merely one ally to another, but they are frequently passing from neutral to ally and back to neutral again, in a complicated web of trade, transportation and finance. They are all giving life to economic activities and through these to the military

action to which all energies are bent. Conversely, the control of international commerce so as to deprive the enemy of essential materials and of any share of the good possessed by the allied neutral nations has been found to be as essential as the promotion of legitimate trade.

"Thus the problem of our Government is twofold: how to maintain trade with our allies and with neutrals, particularly non-European neutrals, as a means to the winning of the war; and how to restrict commerce that might be of possible direct or indirect benefit to the enemy. It is apparent that the attempt to solve one phase of this problem may interfere with the solution of the other, but there can be no question about the need for the exercise of all the resources and influence of the United States in both endeavors. At a time when so much is expected of us in feeding and arming our allies, a million and a quarter of vigorous young men are being withdrawn from productive industry, and further withdrawals in drafts will occur from time to time. Here is an additional argument for the exercise of every possible economy of method and of every impetus to maximum production that the patriotism of the people can suggest or Government policy can promote.

Trade with Latin America and Orient

"While the supply of the needs of our allies and of our own expeditionary forces is, of course, the first necessity, it would be a mistake to regard this as entirely apart and separable from the maintenance of our neutral commerce, especially of that with Latin America and Asia. Several hundred thousand tons of manganese ore per annum from Brazil is required to keep the steel industry in operation; the tin ore of the Straits Settlements becomes the container of the army ration; the rubber of Brazil and Ceylon enters the tires of trucks and ambulances beyond the battle line; the wool of Argentina is needed in large quantities for military clothing. No American army can subsist without coffee, and the cocoa of Ecuador and the Central American republics is the base of an important element in the emergency ration. Between the neutral nations that possess these materials and the United States there exists a condition of reciprocal dependence. They are as much dependent on us for merchandise which, on account of war conditions, is obtainable nowhere else, as we are on them for indispensable military supplies.

"Happily, we seem to be in the way of having the cooperation of the larger part of Latin America in the prosecution of the war, but should that not come to pass, we can still reckon on its benevolent neutrality. We may realize practical pan-Americanism by steadfast recognition in principle and practice of the economic ties between the United States and the other American republics. Our country must continue to offer a market for a considerable part of the products of Latin America, and must see to it that adequate transportation is provided for the conveyance of that merchandise.

"So also, the United States must stand ready to serve as a source of supply to the countries of Latin America of merchandise which they can obtain nowhere else but which is necessary for their life and industry and the development of their resources which were interrupted three years ago. The Exports Administrative Board has a great opportunity in constructive work in fostering trade with Latin America. The needs of our sister republics for the articles of export with which we can supply them can be definitely determined, and a policy adopted calculated to give them an assured source of supply here. Once it is realized throughout Latin America that the United States recognizes, as a primary principle of its war policy, the duty of supplying the needs of its southern neighbors and of maintaining uninterrupted the means of transportation, a surer basis will be supplied for satisfactory pan-American relations."

The Thomas Spacing Machine Co. is now the name of the Standard Bridge Tool Co. The main office will remain in the Fulton Building, Pittsburgh, but the company has erected a machine shop on a site near Pittsburgh which was recently purchased.

Ornamental Iron and Bronze Manufacturers Meet

At the tenth annual meeting of the National Association of Ornamental Iron and Bronze Manufacturers, Sept. 19 and 20, held at the Hotel Sherman, Chicago, officers were re-elected as follows:

President, H. H. Suydam, Cincinnati; vice-president, E. F. Lasar, Lasar Mfg. Co., St. Louis; treasurer, Fred J. Meyers, F. J. Meyers Mfg. Co., Hamilton, O., and commissioner, Charles F. Waltz, Cincinnati. The officers, with the following, compose the administrative council: W. B. Rix, Barbee Wire & Iron Works, Chicago; F. H. Howe, Columbus Wire & Iron Works, Columbus, O.; F. P. Smith, F. P. Smith Wire & Iron Works, Chicago, and W. Hume Logan, Dow Wire and Iron Works, Louisville, Ky.

Addresses were made by F. P. Smith, E. F. Lasar, F. H. Howe, Theodore R. Tiesler, St. Louis Wire & Iron Works, St. Louis; C. Zimmerman, W. S. Tyler Co., Cleveland, and F. Grimm, Buffalo Wire Works, Buffalo.

A point emphasized by the speakers was that business conditions and methods are changing, and that the war has brought co-operation and efficiency to the front as nothing else could have done. To meet the changed conditions continued co-operation and careful consideration of overhead expense are needed. It was pointed out that the association was one of the first to lay stress on the beneficial results secured by adequate overhead allowances, and that in 10 years not one member of the association had failed or discontinued business from any cause.

The headquarters of the association are in Cincinnati.

Fire Extinguisher of the Pump Type

The Fire Gun Mfg. Co., Inc., 17 Battery Place, New York, has developed a new piece of hand fire fighting apparatus. It resembles in external appearance the ordinary chemical fire extinguisher to some extent, but is a positive double-acting liquid pump. By moving the handle in and out the extinguishing agent is expelled at each stroke. The fluid employed is a non-conductor of electricity and it is pointed out will not freeze or injure fabrics or delicate machinery. It is offered also for extinguishing gasoline and oil fires where water cannot be used.

Buys Coal Mines

The Trumbull Steel Co., Warren, Ohio, has purchased a half interest in the Pitt Gas Coal Co., owning and operating mines in Washington County, Pa., and at present producing about 800 tons daily. These mines will assure the company its coal supply for many years.

The Sangamo Electric Co. has opened a Chicago district office in the Old Colony Building in charge of C. H. Hurtt as district manager. In establishing this office the company has made no change in the selling arrangements it has had for many years with the Electric Appliance Co. and the Federal Sign System (electric) of Chicago, which will continue to handle Sangamo products. The new office has been established to give a more complete service on Sangamo meters and other products. A repair department will be maintained under the management of the Chicago office.

To investigate the behavior of different cutting compounds in the use of high speed steel, the Warren G. Black Oil Co., Cleveland, has been making tests in a number of machine shops equipped with automatic machine tools. The company holds that now that pure lard oil is substantially out of the question, mineral and vegetable oils have been used in a more or less unscientific manner.

The Elyria Iron & Steel Co., Cleveland, is erecting a cold rolling department in connection with its Elyria, Ohio, plant, and in about 60 days will begin the manufacture of cold and hot flat stripped steel in widths up to about 12 in. Cold rolling equipment is now being installed. Hot rolled stripped steel will be produced by mills now in use in the plant.

New Air-Carried Powdered Coal Plant

Standard Tin Plate Co. Installation—A Feature Is the Equipment to Facilitate Collecting the Suspended Coal for Transfer to Storage

POWDERED coal pulverized and distributed by the Holbeck system is being used for heating 46 sheet and pair furnaces at the plant of the Standard Tin Plate Co., Canonsburg, Pa. An interesting feature of the installation is the arrangement of coal dust col-



Burners at Rear of Sheet and Pair Heating Furnaces Showing Coal Dust and Secondary Air Supply

lectors in both the distributing and pulverizing parts of the system. This is shown diagrammatically in one of the illustrations.

The pulverized coal is delivered to a main conveying duct and is carried in suspension in a continuous current of air, with branch lines leading to the furnaces. The conveyor duct forms a closed system through a return duct leading to dust collectors and thence to the air intake to the distributing blowers. Thus the only outlet is through the branch lines to the furnaces. The installation comprises two distributing blowers with inter-connected dust collectors and four pulverizers, which deliver coal through individual dust collectors to two powdered-coal storage bins. Two pulverizers supply a single bin. The illustration shows the arrangement of equipment attached to one of these blowers and pulverizers. The work of designing and erecting the equipment was done by the Bonnot Co., Canton, Ohio, under the personal direction of A. A. Holbeck, who is its chief engineer. Alterations to the furnaces to accommodate the system were made during shut-down periods on Saturdays and Sundays.

After running the sheet and pair furnaces for a period of several months it was decided to run a branch coal-dust main to an annealing furnace, also a similar line was carried to one of the tin pots in the tin house. Additional equipment for preparing and distributing powdered coal to 18 annealing furnaces and 50 tin pots is now being installed and in a few weeks the Standard Tin Plate Co. will use powdered coal in all its heating work.

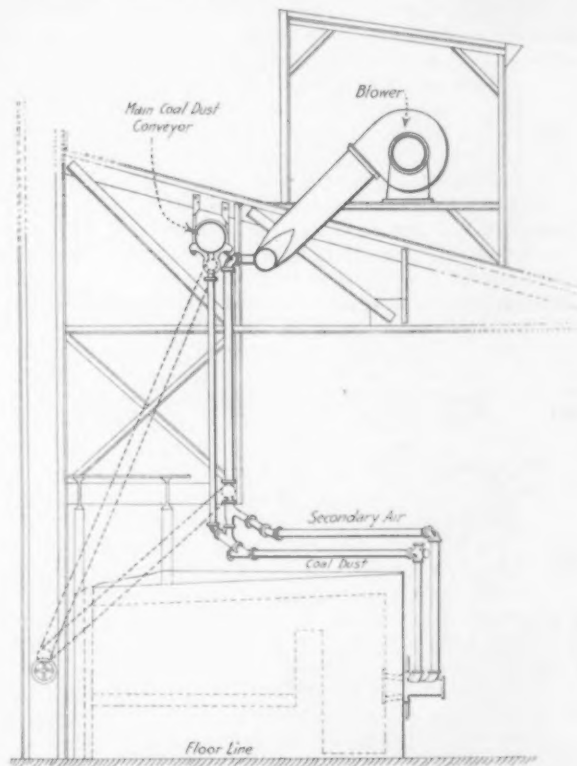
The pulverized coal plant contains three 9-in. screw conveyors placed in concrete trenches. These receive the coal from the coal storage pocket and deliver it to an 18-in. belt conveyor. After passing a magnetic separator which removes all foreign matter the coal goes to a bucket elevator. This elevates and discharges it through a spout to an automatic registering scale which weighs and drops it to a drier.

This drier, which is hand fired, removes the moisture from the coal so that only $\frac{1}{2}$ per cent remains. There is not much danger of the coal taking fire as the velocity of the gases is low due to the large area of the drier. Also, the drier is provided with dust-tight rings at each end to prevent dust leakage.

From the drier the coal is conveyed by a screw conveyor to the two dried-coal bins, one being placed between two Bonnot pulverizers. Each pulverizer has a capacity for pulverizing 2500 lb. of coal per hour to a fineness of 95 per cent through a 100-mesh screen and 85 per cent through a 200-mesh screen.

After being pulverized the fine coal dust is drawn through an air separator on the top of each pulverizer and discharged into dust collectors, one for each pulverizer. From these the coal dust drops to the storage bins while the air is drawn back to the pulverizers maintaining a partial vacuum in them. This, it is said, insures an absolute quality of fineness of grinding and incloses the system so there is no escape of coal dust to the atmosphere. Also the combustible gases released by pulverizing the coal are kept in the system and delivered to the suction piping of the distributing blowers.

The powdered coal is fed to a cast-iron high pressure distributing blower along with air in such proportion that it is carried by suspension through pipes to the



A Branch Line from the Coal-Dust Conveyor and One from the Secondary Air Supply Unite at the Burner at Rear of Furnace. Provision for regulation by the operator and the elevated blower for the secondary air line are shown

different furnaces at a velocity of approximately a mile a minute. The coal dust and air traveling through the pipe form a non-combustible mixture which requires

additional air for combustion of the coal. This is furnished under a small blast pressure at the coal burner.

The amount of coal dust and air fed to the distributing blower is governed by a regulator which in turn is governed by the volume of air flowing through the line so that irrespective of varying demands on the system a constant mixture of coal and air will be delivered to the distributing duct. The regulator controls the speed of a variable speed motor which drives the screw feeding coal to the blower. A float controls the free air admitted to the blower with the coal dust.

The distributing pipe for the 46 sheet and pair furnaces is 1480 ft. long and is carried up and over and through the roof trusses with branches dropping down at each furnace to supply the burners. The method of dropping a branch pipe to the burner and also the manner in which the supply of coal and secondary air are controlled by the furnace operator are illustrated.

Approximately 600 lb. of coal, it is said, were required per ton of steel heated with hand firing while with powdered coal this was found to be reduced to 280 lb. per ton.

The Vogt Bros. Mfg. Co., Louisville, Ky., has been denied an exemption from city taxes for a period of five years in a decision in the Circuit Court there. The contention of the company that as a new enterprise it was entitled to the exemption offered by the city was set aside by the court which held that although the bulk of the products of this \$400,000 plant were new, the fact that it continued to make two articles made in an old concern which it took over is a bar to the exemption. The Vogt company in organizing bought the old National Foundry & Machine Co., and is continuing the manufacture of steam pumps and fire hydrants which were a feature of that concern's business. The exemption from city taxes is not as important a matter as it used to be, for the new Kentucky tax law provides exemption from local and county taxation of all machinery used in manufacture, all products in the course of manufacture and all raw materials assembled for manufacture.

Annual Outing of New England Iron and Hardware Association

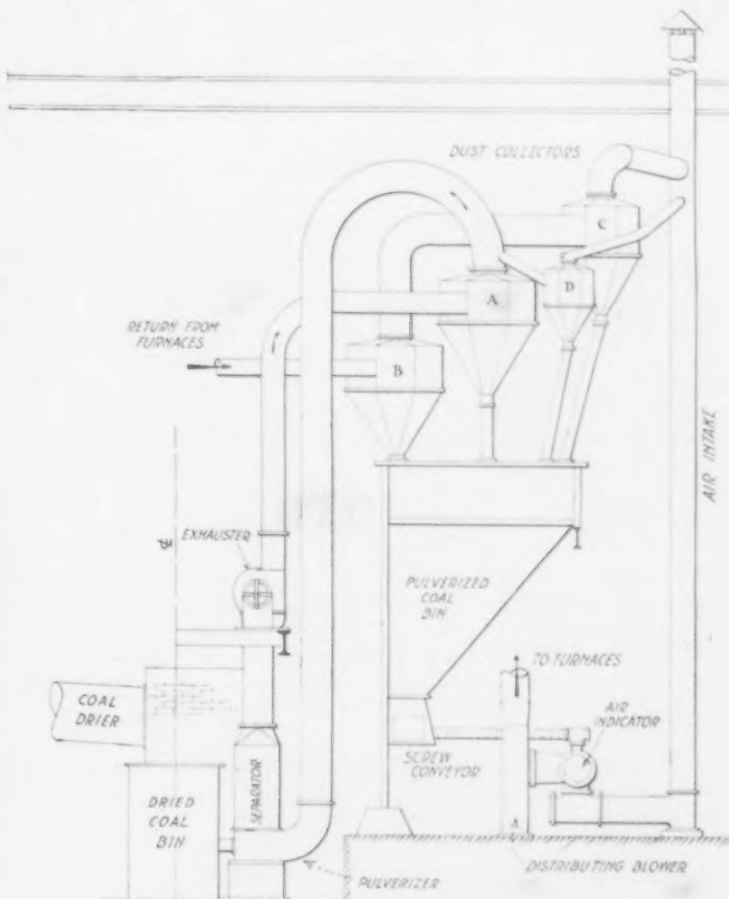
The New England Iron and Hardware Association held its annual fall outing at the Tedesco Country Club, Swampscott, Mass., Sept. 18. About 70 members and guests enjoyed the occasion. The golf tournament, which has become established as one of the features of the annual outing, saw some lively contests for the handsome prizes contributed by the Bethlehem Steel Co., Cambria Steel Co., Standard Horse Shoe Co., Wilbur Sargent Locke of Carnegie Steel Co., and Wilbur B. Ayer. The winners were W. H. Hunter, Murray Boutwell, R. H. Sanderson, H. W. Stratton and Chester C. Butts. The tournament was under the charge of W. S. Locke, Fred H. Butts, Butts & Ordway Co., and Harry L. Doten, Austin & Doten. At the dinner Vice-President Charles W. Henderson, Arthur C. Harvey Co., presided and spoke feelingly of the president of the association, Wilbur B. Ayer, Belcher & Loomis Co., Providence, whose continued illness prevented his attendance at one of the most enjoyable outings in the history of the organization.

The Wellman-Seaver-Morgan Co., Cleveland, has recently completed the installation of an electrically operated moveable car dumper at the Swedeland, Pa., blast furnaces of the Alan Wood Iron & Steel Co.

SERIOUS COAL SHORTAGE

Cleveland Manufacturers May Be Compelled to Close Their Plants

The coal situation in Cleveland has become so serious that many manufacturers say that it will be necessary to shut down their plants unless relief is afforded



Dried coal after pulverization is delivered through an air separator to the main collector A, from where it falls to the coal storage bin. A screw conveyor carries it from here to a distributing blower, which takes in air through the air intake and delivers the mixture to the main coal-dust conveying duct. Coal dust not taken by the furnace continues through the conveying duct, which returns to dust collectors B and C. These are open to the air intake, but the coal settles to the bin.

shortly. The matter was taken up last week by the Industrial Development Committee of the Cleveland Chamber of Commerce, of which Walter D. Sayle, president of the Cleveland Punch & Shear Works Co., is chairman. A meeting of the manufacturers was held to discuss the situation and later the coal operators held a meeting with the committee. The coal operators complained that the railroads failed to supply the mines with an adequate number of cars and that the movement of coal is slow. Price fixing by the Government and the drafting of miners for military service were named by the coal men as contributory causes of the shortage.

The Chamber of Commerce committee will hold a meeting with representatives of the transportation companies, Sept. 27, and after this meeting President Sayle will name a joint committee embracing all the interests affected, and this committee, after discussing the problem, will prepare a statement of facts and a suggestion of remedies and will place the matter before Government officials in Washington.

The Harrisburg, Pa., district draft exemption board has been notified by Quincy Bent, general manager Steelton, Pa., plant, Bethlehem Steel Co., that exemption would be asked for by the company for only 11 of the 9505 employees at the Steelton plant, of which 2435 are subject to draft and 423 have already been called.

Hearing on Federal Control of Steel

Chairman Davies Suggests Suspending or Canceling Existing Contracts

How Competitive Buying Pushed Prices of Iron and Steel to Present Levels—No "Relief" for Private Consumers Unless the President Is Given Power to Fix Prices for the Public—Plate Mills Buy High-Priced Pig Iron

WASHINGTON, Sept. 25.—A strong indorsement of the basic proposition embodied in the Pomerene bill, authorizing the President to fix the price of iron and steel for the private consumer as well as for the Government and the Allies, was given by Federal Trade Commissioner Joseph E. Davies at a hearing on the measure before the Senate Committee on Interstate Commerce on Sept. 21. Mr. Davies spoke for the commission, which was also represented by Commissioner Victor Murdock, Special Counsel Arthur W. Fairchild, and Dr. Francis Walker, chief economist, and James Wooster, chief accountant on steel.

Mr. Davies told the committee of the work done by the commission pursuant to the President's order to ascertain the cost of steel as a basis for the determination of the price of that commodity when purchased by the Government, thus making the first public statement on this important subject, and pointed to the difficulties which the commission had encountered and which would embarrass administrative officers when undertaking to fix a price that would be sufficiently high to induce small producers to develop their output to the maximum, but that would not yield exorbitant profits to the big, fully integrated concerns. Mr. Davies dwelt with special emphasis upon the necessity for some method of federal control of the industry, that would protect the private consumer from the effect of price-fixing for Government purchases only, which, he said, would be certain to aggravate existing conditions, as the large demands of the Government would have to be taken out of a fixed supply, leaving a shrunken residue to be competed for by private consumers.

Steel Supply Taken Up by Contracts

Mr. Davies also expressed the opinion that it would be exceedingly difficult to enact a law that would provide genuine relief to the private consumer of steel in view of the fact that a large percentage of the output of steel for many months to come, possibly a year, is covered by contracts at very high prices. Consumers who, to protect themselves, have bought materials at prices current during recent months, would be at a disastrous disadvantage with those less forehanded should Congress authorize the President to fix steel prices for private users as well as the Government. Mr. Davies did not specifically advocate a provision in the bill for the abrogation of existing contracts; but, while urging the necessity for radical action for price control, he indicated the belief that it could not be made genuinely effective unless some action were taken respecting contracts now in force.

In an informal discussion among members of the committee which followed Mr. Davies' testimony, Senator Pomerene declared that it would be futile to undertake to find constitutional support for the proposed legislation in anything but the plenary power which Congress may give to the President to wage war. The whole bill, he said, must be treated as an exercise of the President's war power, amply warranted by existing conditions.

Steel Companies Do Not Respond

At the close of the hearing, Chairman Newlands asked whether any one representing the steel producers was present and desired to be heard, and as there was

no response he read to the committee a brief letter of invitation which he said was sent out on Sept. 19 to the officers of the United States Steel Corporation, Bethlehem Steel Co., Pittsburgh Steel Co., and Lackawanna Steel Co. Senator Pomerene expressed the hope that representatives of some of the leading steel producers would come before the committee to offer an explanation of the recent unprecedented rise in the price of steel products and intimated that he was prepared to examine any such witness at considerable length. The committee then adjourned, subject to the call of the chair.

There was no consideration by the committee of the effect of the price agreement arranged by the War Industries Board with several leading steel producers, as its terms had not been announced at the time of the hearing.

Commissioner Davies, in beginning his testimony, reviewed briefly the various steps in the manufacture of pig iron, beginning with the production of the ore, coal, etc. He then took up in detail the results of the investigation ordered by the President into basic costs of manufacture. Continuing, he said:

Integrated and Non-Integrated Producers

"We found in the steel industry that, generally speaking, there are four classes of production in steel. The classes are based on the degree of integration of the processes. There is one class that owns its iron ore and owns the transportation facilities, the railroads to the upper lake port and steamers down to the lower lake ports, and then has it transported to blast furnaces. It owns the blast furnaces, produces its pig, owns its rolling mills and owns its plants that produce the finished product. So it is completely integrated. Such companies produce steel, of course, more cheaply than any of the others.

"The next class is the class that have to buy their iron ore or their coke in part or entirely, so that that class loses profits in the process which the first class gets on the production of iron ore and coke. Its costs figure up to that degree higher.

"Then there is the third class that buys its pig iron and starts its manufacturing process with pig iron that is bought. Its costs are still higher. Of course you can readily see that if class one—the most highly integrated class—can produce pig iron at, for instance, \$16 or \$18 a ton, it is in a position where it can make steel much cheaper than the class that has to buy its pig iron at a \$35 contract price, or possibly a \$50 or \$54 market price, which now obtains.

"Class four is the class that buys its steel billets or steel ingots and rolls plates and shapes or other products out of the steel that it buys. It has the highest cost of all four.

A Centralized Industry

"Another fact that we find in the steel industry that is different from any other industries, is that it is probably one of the most highly centralized of all industries in the country. The total capacity of the country in pig iron is approximately 40,000,000 tons. Sixty per cent of all that pig iron is produced by 12 companies in the United States. The number of companies making steel ingots—which have a total capacity of 43,000,000 tons in the entire country—is about 200. Seventy-two per cent of all the steel ingots produced are produced by 13 companies in the United States.

Steel ships are made out of steel shapes and steel plates. A steel ship is really a steel box. The shapes are the heavy steel that go to make the structure and the plates make the sides; about 70 per cent of the steel used in the ship is plates, while structural shapes (and bars) make up 30 per cent.

"Now, of the total shapes produced in the United States 84 per cent is produced by 5 companies. Of the plates produced in the United States 66 per cent is produced by 7 companies; of steel bar production 62 per cent is produced by 8 companies. So that the industry is centralized to a very remarkable degree in the hands of a very few companies. To that extent, of course, it might be more easily subject to central government control or regulation. There are 6000 coal mines in the United States."

Cause of Price Advances

Mr. Davies here reviewed the rise in price of the leading steel commodities from 1895 to August of this year. Continuing, he said:

"The causes for this very remarkable advance in prices, we believe to be two at least. In the first place, there have been very marked increases in costs. Wages have increased; and I noticed in the morning paper that the United States Steel Corporation has made another additional 10 per cent wage advance for all of its employees. It has been stated, and I think it is sustained by the judgment of our experts, that a 10 per cent wage advance by the United States Steel Corporation means an increase in price of steel of about \$1.50 a ton. Wage advances have been as high as 40 or 50 per cent these last two or three years. So if there have been four increases of 10 per cent by the United States Steel Corporation, the increase in cost of steel to that corporation would be about \$6 a ton by that increase.

"The second principal reason, as we view it, for the present high prices is the fact that there has been a tremendous demand for steel, and the supply of steel relatively is limited, and it takes time to build steel plants. The production has been increased, or will be increased, probably 500,000 tons as to sheets and plates by the first of the year, but generally speaking the available supply is constant and the demand has been tremendous. For instance, a vast amount of shipping has been destroyed, as we know, and there is a great demand for steel both for the Allies and for our own uses. The government demand for steel for ships, I understand, will be in the neighborhood of from 4,000,000 to 6,000,000 tons. That increase takes out of the available supply for industrial and commercial uses a very much larger factor than has ever been taken out before. That reduces the amount that will be available for domestic and private consumption."

"Have you in mind what was the normal consumption of steel by the Government prior to this year?" asked Senator Pomerene.

"I do not know," replied Mr. Davies, "but I should say it was not one-fifth of the present consumption. I think that a conservative estimate."

"As these prices have advanced I imagine the use of steel for industrial and domestic purposes has diminished while the Government's use has increased. Is that not a fact?" asked Chairman Newlands.

Competitive Buying of Steel

"That would be so," replied Mr. Davies, "provided the demand were a constant and normal demand and not an increasing demand, but I do not think it is so in the present condition. The commercial and industrial worlds have never had such demands for their production as now. There has never been such a demand for steel as within the last year, and the demand is such that it takes absolutely no cognizance of price. That is to say, if a man has a contract which he is obliged to meet, and if he has a large force of men—2500 we will say—and an organization which it has taken him years to build up, he has to have steel in order to keep his plant going and to keep his organization from being disrupted and scattered. So he asks for steel and he says the price is a secondary consideration with him. What he wants is steel. The result is that the price of the commodity bears no relation whatsoever to the

cost of its production, and prices have gone up on steel, not so much because the producers have exacted a high price for their product, perhaps, as the fact that the buyers are competing with each other for the same production, and if there are six or eight buyers for one commodity and they cannot get it any place else, they will bid against each other and bid the price up. So that the market, so far as the price of steel is concerned, has been a runaway market, so to speak.

"In our judgment, that is one of the big factors in the increase, or one of the principal reasons for the increase of price of steel production."

Government Needs 5,000,000 to 6,000,000 Tons

"In speaking of the Governmental demand for steel during the last year," asked Senator Cummins, "do you mean to include the foreign demand as well as the domestic demand—I mean the demand of the foreign governments as well as our own?"

"I was advised as long ago as ten weeks that the demands of the Government for the past year were 3,500,000 tons," replied Mr. Davies, "and in conference with the War Industries Board, Judge Lovett, Mr. Brookings and Mr. Baruch, on Monday last, it was stated by Mr. Replogle, who was handling steel for Mr. Baruch, that the total of requirements for the coming year would be in the neighborhood of 5,000,000 or 6,000,000 tons. I do not know whether that included the requirements of the Allies or not, but my judgment is that it did not, and that that is the requirement of this Government alone. As to that I would not be definite."

Increased Sheet and Plate Capacity

"What is the capacity of the industry at this time as compared with a year ago or two years ago?" asked Senator Cummins.

"I think the capacity has been somewhat extended," answered Mr. Davies, "but I understand that of that character of steel which the Government needs principally, which is sheets and plates, it has increased about 500,000 tons up to the first of January.

"But the kind of steel that the people use generally, with respect to that it has increased much more, has it not?"

"I doubt very much whether the capacity has increased substantially, because it takes time to put up the plants. It has increased, but relatively I do not think it is a very large increase. The amount of steel that is produced for shapes I think is about 3,200,000 tons and the amount for plates about 5,300,000 tons; so the production of steel for plates and shapes is about 8,500,000 tons. The principal requirements of the Government come from that character of production, so that the ratio of six to forty does not adequately show the degree to which the Government invasion of the market will affect the market as to private consumers. In other words, the amount taken out, 6,000,000 tons, will affect the market very substantially as to the requirement of ordinary industry, because it is the same class of steel they largely use."

"Has this increase in the demand for shapes and plates, and the like, diminished the capacity of the mills for the production of structural steel for building, for bars for merchants and for rods and nails, and the like of that?" asked Senator Cummins.

"It has in this way; that in order to get the steel for plates and shapes which the Navy and the Shipping Board will require, it will be necessary to take steel that would ordinarily be used in bridge construction, building construction and that class of products that you have described in order to supply the needs of the Government for shipbuilding and the needs of industry for shell steel and other things which have a greater priority than, for instance, the construction of buildings has."

Not Iron Ore but Steel Scarcity

Senator Cummins: "That is, they have not enough iron ore to supply the entire demand?"

"They cannot produce enough steel to supply the entire demand. The blast furnaces and the steel rolling mills are being put up as rapidly as they can be, but it takes time to get them going and to get their

plants organized. I think it should be stated in fairness that they are having trouble with labor also. They claim that their labor is less efficient than it was, that a great many of their men are being taken away."

"Have you any idea of what additional amounts of capital have been put into plants for the production of steel and pig-iron during the period of the war?" asked Chairman Newlands.

"I know that about 500,000 tons additional capacity for plates and shapes have been put up, and that the average investment required per ton of plates and shapes would be about, at the outside, \$50, so that it would be in the neighborhood of \$25,000,000 in that particular, and I dare say a great deal more construction than that represents has been started.

"To summarize, the fact is that the price situation that we are now confronting is largely due to increase of cost, and those increases are proceeding month by month. The last costs that we had were in June, 1917. The costs increased every month from January, 1917, up, and the costs in August were undoubtedly higher than the costs in June. For instance, pig iron for the United States Steel Corporation in 1917 cost \$1.27 more than in 1916; shapes in May cost \$5 more than in 1916; plates, \$8 more than in 1916.

"Now, there have been increases in cost in labor, but they do not begin to represent the increases in costs that have affected these prices. When class two is considered, that buys its ore, that has to pay more for its ore than the United States Steel Corporation, and class three which buys pig iron at \$35 or \$50 a ton, of course the cost of plates and shapes goes up tremendously, and so it goes up all along the line. The highest cost of basic materials is translated into steel higher costs in the final finished product, but there are increases in cost in addition to these increases in the price of basic materials, and those costs are increasing, but the increases in costs have neither absolutely nor relatively been anywhere near commensurate with increase of price, and you cannot account for the increase in price by the increase in cost, and you must account for the increase in price in part, at least, because of the competitive buying of people who have to have steel."

Steel Corporation's Increased Costs

"I do not want to disturb the order of your argument," suggested Senator Cummins, "but if you could take a fully integrated company, the United States Steel Corporation, for example, and begin with the iron ore, not counting the value of the ore in the ground, but begin with the production of the ore, and state what added cost there is in taking ore from the ground and putting it on the docks at lake ports, and transporting it to the blast furnaces, so that we would know the increase in cost of a ton of pig iron to that company, and then follow that pig iron through the various forms that it takes in manufacture, it would give us a very comprehensive as well as a logical conception of what the added costs have been, and what their effect ought to be in the price."

"Suppose I give you this," responded Mr. Davies. "If coal costs, we will say, \$2, the conversion cost of that coal into coke would probably be \$1.25, the oven profit on coke would probably be 25 or 50 cents, including overhead; that would make the coke at the oven about \$5 on present standards. Then, if you were to take the iron ore, and freight and take two tons of ore and one ton of coke, as your pig iron would be made up of two tons of ore at \$5, which would be \$10, and one ton of coke at \$5, which would make the total \$15, and then your freight on your coke and ore to the blast furnace would be about \$2.75 to \$3, your limestone about 60 cents, and your cost above, probably \$2, which would bring the total cost of the pig iron to about \$19 or \$20 a ton. Then you would add to that your profit per ton in order to get your profit on investment.

"That is not the integrated concern. Now, to the integrated concern the cost of pig iron would be about \$16 a ton. That is, the saving it would make on inter-company profits would be about that difference. If you take out inter-company profits from your book cost of \$16 a ton for pig iron, you would reduce their costs to approximately \$12 a ton, so that the integrated concern

that owns its ore, that owns each stage in the process up to the manufacture of pigs, could make the pig iron at a net cost of about \$12 a ton, whereas the concern that had to buy its ore and buy its coke and pay its freight at these prices will be paying about \$25 a ton."

"In 1902-06 the average cost of plates and sheets, including inter-company profits, was \$22; in 1910, for the same class, \$22.50. That is the highly integrated concern. In 1916 the average cost was \$27.44, which excluded inter-company profits. In 1917 the cost in May or June was \$34. That excludes inter-company profits."

Senator Cummins Sees Large Profits

"I wanted, as a conclusion to this inquiry that I have been making," said Senator Cummins, "to have it appear that for a form of steel which costs one of these fully organized companies \$34 a ton, the company is now charging \$179 a ton."

"The United States Steel Corporation," said Mr. Davies, "is selling as high as 4.5c. and 5c. a pound. I was told by one of their officials that they did not sell at a higher price than 4.5c.; that they had been offered as high as \$11 a hundredweight and had refused it."

"You have the costs now, including inter-company profits, on shapes and plates. The Bureau of Corporations made an estimate in 1913 of the investment necessary to produce a ton of plates, and then stated what the profits per ton of plates would be required to be in dollars, to bring a certain profit in per cent on the investment required to produce it, and the margin over cost of \$7.28 on plates, this item that you figured, would then yield a per cent on estimated investment of 2.8 per cent. A margin of \$15 would bring a return on investment of 18 per cent. That can be figured out, a margin in profit, if those plates, we will say, cost \$40, including inter-company profits to-day, and were sold at \$160, that would leave a net profit of \$120, and the profit on investment would be very close to 100 per cent per year."

Profit Compared with Investment

"Is there such an increase of plant, in order to cover this emergency, as to warrant any such profit?" asked Chairman Newlands. "In other words, is the risk of plants, which are now being constructed to meet the demand, being idle after this emergency is over, sufficient to warrant so large an increase of profit?"

"This estimate of investment required to produce a ton of pig iron plates and shapes," replied Mr. Davies, "was based upon the investment cost at normal times, where the building costs were probably lower than they are now, and if you were to take present investment costs, they of course would be very much higher; but for the great bulk of the production the old investment costs are the costs upon which it should be computed, because their plants were going concerns."

"Is there any danger of any part of that new investment cost being scrapped after the war?" asked the chairman.

"Of course that is a matter of judgment. There are opinions both ways. My own judgment would be there is not any danger of its being scrapped. I think the use and need of steel will be much greater after the war than it was prior to the war, but that factor should be considered in making a price."

Costs Compared by Years

Taking up in detail the results of the recently concluded inquiry, begun at the President's direction, to ascertain the cost of producing steel in basic forms, Mr. Davies said:

"The cost in 1902-1906 of lake ore, Mesaba, was \$2.45; 1910, \$2.28; 1916, \$3.14; average for 1917, \$3.16. Coke, 1902-1906, \$1.64; 1910, \$1.54; average for 1916, \$2.62; average for 1917, \$3.22, an increase in cost of almost 100 per cent on coke.

"The average cost of pig iron in 1916 to class 1, the concerns that own their iron ore and own their coke, was \$10.15; their average cost in 1917 was \$13.62, an increase of about \$3.50 a ton over 1916, which was about the average they obtained normally theretofore. In class 2, the concerns that had to buy their iron ore and

buy their coke, the average cost for 1916 was \$16 and the average cost for 1917 was \$21, a net increase this year of \$5.

"On steel shapes, the average cost in 1916 of class 1, the highly integrated companies, was \$27.44; in 1917 it was \$34.66. To class 2, the class that had to buy its iron ore and coke, in 1916 the cost was \$31.30; 1917, \$43.11, an increase of about \$11. Lastly, to the class that had to buy its pig iron, the cost in 1916 was \$42, as contrasted with the average normal price of \$27 theretofore, and in 1917, \$48, which was \$6 more than in 1916.

"On plates, the average normal cost was about \$27 in 1916, while in 1917 the average was about \$35. In class 2, those that bought their iron ore and coke, the cost in 1916 was \$37, and in 1917, \$46. You will note the wider spread as you go up in the higher classes. In class 3, the class that buys the pig iron, it cost them to produce plates \$38 in 1916, average, as against \$27 normal, and \$53 in 1917, a jump of \$15 this year over last year. They are paying higher prices for that pig iron this year than last. In class 4, the class that bought its semi-finished product, the cost in 1916 was \$51 and the cost in 1917 was \$78."

How Costs Were Found

"The manner in which we conducted this cost inquiry was briefly thus: We took each one of the basic materials, ore, coke, pig iron, ingots, plates and shapes. We got the average costs that obtained in 1902-06 and 1910; then we got the 1916 costs; then we got the 1917 costs, and then we got the present prevailing prices; then we computed. We gave in our report the profit per ton of product in dollars that would be necessary to make a certain return, we will say of 12 per cent on the investment required to produce that ton.

"For instance, in iron ore our costs cover 85 per cent of the production of the country. The average cost for Mesaba ore at lower lake ports in 1902-06 was \$2.45 per gross ton; the average profit during that period on all the ore sold was 44c. per ton. The present quotation on all lake ores is \$1.60 a ton higher than in 1910, whereas the increases in the average cost were from 70 to 88c. a ton. The price has doubled. The cost increased 77c.; the price increased \$1.50. Profits that had been generally taken for a period of five years on lake ore were 44c., 44c. to 50c., which would give a profit of 12 per cent on the investment required to produce a ton of ore. On present costs, 90 per cent of Mesaba ore costs \$3.94 or less at lower lake ports. We took the large percentage because these figures were needed in order to furnish a base, I presume, for price and it is perfectly apparent that if you fix a flat price, unless you fix the price high enough, you will not get the production.

Coke and Pig Iron Costs

"For the five year period the average profit on all Connellsville beehive coke was 51c. a ton; the average cost for that five year period, 1902-06, was \$1.46 a ton. In 1917 the average cost of Connellsville coke was \$3.10 a ton. Eighty-five per cent of Connellsville coke from merchants' ovens cost \$4.08 and from 90 per cent of the steel companies' ovens the cost was \$3.10. Eight to 12 per cent profit per ton, as computed by the Bureau of Corporations on the steel companies' investments in 1910, would necessitate a profit on the cost of coke to about 50c. a ton.

"For the period 1902-06 on pig iron the average book costs of Northern pig iron were \$14.04; the average profit of all companies for that period was \$2.05 on all pig iron. On that basis it is computed that they make about 12 per cent on the investment required to produce it.

Profits Vary Widely

"In 1917 84 per cent of the pig iron produced by the steel companies' furnaces cost \$15.92 or less; 82 per cent of the Northern merchant furnaces pig iron cost \$19 or less.

"Now, the profit per ton in dollars in relation to investment: It has been estimated by the Bureau of Corporations in its reports heretofore made, that on a basis

of 12 per cent on the investment the margin of profit above cost per ton of pig iron would range from \$1.19 to \$2.08. A profit of \$2.50 on pig iron would bring a return on the investment of 12 per cent."

"What is to be said of these people who have been selling it at \$55 a ton?" asked Senator Cummins.

"A concern that sells it at \$55 a ton, whose costs are \$15 a ton, would be making a profit of \$40 a ton, which would be in the neighborhood of 180 or 200 per cent profit," replied Mr. Davies.

"Assuming \$50 a ton profit is made on steel, do present prices indicate as much as that?" asked Chairman Newlands.

"For some companies, yes, Senator; but you must bear in mind the costs vary."

"Take the United States Steel Corporation?"

"Take the most highly integrated company and plates and shapes at current prices, they make a great deal more than \$50 a ton."

"Very well. If the entire business were integrated, as the business of the United States Steel Corporation is, and \$50 a ton were made on every ton of the 40,000,000 tons produced annually, that would be \$2,000,000,000 profit, would it not, which would amount annually to more than one-half of the total capitalization?"

"I think that is approximately correct. But in fairness it should be said that the price that will give the highly integrated concern \$50 profit may not give the little fellow, the disintegrated class, the poor fellow, 5 per cent. In other words, if you are going to have the little fellow produce you have got to fix a flat price that will necessarily give the low cost man a very large margin of profit, \$50 we will say, in order to make it possible that the little fellow can live."

Cheapening Raw Materials for Small Producers

"There is another way by which the condition can be ameliorated," suggested Senator Cummins. "If you fix the price of iron ore at a reasonable figure, or fix the price of pig iron at a reasonable figure, then the little fellow will not suffer if there be a reasonable price fixed for the finished product."

"That is, of course, true," assented Mr. Davies, "but I think you will find that if the prices are fixed right straight through on the basis at which 85 or 90 per cent of the production could be produced at—you must not starve production, because production is as important as price in steel—I think you will find that the same margins will obtain, although the spread would not be quite as wide. In other words, if you fix the price of pig iron at \$25, say, so as to get the little producer of pig iron in as well as the big producer, the low cost producer would be making a very large margin of profit out of the investment, whereas the little, high cost producer of pig iron would be making a very small margin of profit, and there would be some who could not produce pig iron at all."

"That is true," commented Chairman Newlands. "There is necessarily a spread, because there is a certain economy in production that can be secured in the fully integrated concern that cannot be secured in the small individual concern; but that spread will not be very great if the three classes that you have named, the second, third and fourth classes, are able to buy their raw materials at reasonable prices. I think there are a good many instances in which a steel concern, if permitted to buy its pig iron at a fair price, could produce its finished product at a less cost than the United States Steel Corporation, giving the Steel Corporation profit for the various steps it takes in the production. While as a general principle you are right, we cannot endure a situation in which the smaller people are compelled to pay these enormous and unreasonable prices for their raw material. I think that is one of the great objects to be aimed at in this legislation."

Ore and Coke and Pig Iron High

"I agree with you entirely," responded Mr. Davies. "If the prices of the basic materials, iron ore, coke and pig and ingots and billets were fixed so that the class four man could get them at that price, it would reduce his cost very materially. The high prices of \$68 and \$92 cost, which we have found in some of the small

companies, are largely reflected in the high cost for metallic mixture, that is, the high cost of their material. Still, if you were to take the basic prices and fix them on a plane which would bring in 90 per cent of the production, you would still get your price for plates and shapes so high that it would bring a very large margin on investment, probably as high, to be conservative, as 36 per cent for the highly integrated man, where the little man would be making a profit of say 10 per cent, or some of them would make no profit at all.

"I do not want to leave a misapprehension on this. There are blast furnaces to-day whose costs for pig iron run up much higher than \$20. There are merchant furnaces that pay as high as \$6 or \$7 for their ore, that is, \$14 for the ore, for a ton of pig iron and as high as \$16 for their coke. That will be \$28 for coke and ore, and probably \$3 or \$4 for conversion costs and overhead, so their costs would come up per ton to \$32 and \$34. But that is due to the fact, as you have suggested, that the cost of ore and cost of coke is so high."

Steel Corporation Profits

"Do you know," asked Chairman Newlands, "what the steel output in tons of the United States Steel Corporation is?"

"About 15,000,000 tons finished product," answered Dr. Walker. "The Steel Corporation produces about 20,000,000 tons of ingots."

"If the United States Steel Corporation produces 20,000,000 tons annually of steel and the profit is \$50 a ton, that would make \$1,000,000,000 annual profit," said Senator Cummins. "Now, it is not contended that the steel trust does make that amount in profit, is it?"

"The Bureau of Corporations report states on supporting facts," answered Mr. Davies, "that when the United States Steel Corporation was organized with a capital of \$1,400,000,000, of which \$400,000,000 was common and the rest divided up between bonds and preferred stock, that the real value of the properties was in the neighborhood of \$700,000,000. Since that time the United States Steel common stock has gone from around the 20's up to as high as 136, and has built up a surplus of over \$400,000,000, so that undoubtedly any water that obtained in 1901, when it was organized, has been solidified by the profits that have been turned back into investment and capital account, and the United States Steel Corporation, by reason of its integration and its efficiency, on any flat price that is made, will make a very large percentage of profit; and even the figure that you name roughly, I should say would not be possibly out of line, because if the price of plates or shapes, or the price of pig is fixed at such a point that the production of the country will come out, because it can be made at the price fixed, it will have to be so high that the United States Steel Corporation will be making a very large profit, whereas the little producer will be making a small profit."

"The salient facts that our investigation have disclosed are the very wide margins of cost between the high and low cost producer in the industry; the fact that the prices in the market have been determined largely not by costs but by competitive buying, by people who require steel, there being a very large demand and a limited supply; the fact that costs are increasing; the fact that if any price is fixed to produce production it will have to be a price that will induce the high cost man as well as the low cost man to produce."

Old Contracts at Low Prices

"Then we have also found that a very large amount of the production is not getting these high market prices, and does not represent all profit, because there are a large number of old contracts outstanding at low prices. On the other hand, we find that a very large amount of material has been contracted for at high prices for the future, so that the producer has low contract prices that obtained before and now he is selling at higher contract prices, and it would not avail the general public any to have this legislation which you are contemplating enacted unless some provision was made to bring relief to those who are now under contract for basic materials at high prices. If the prevailing high prices of \$50 for pig have obtained for con-

tracts to manufacturers who are manufacturing steel, and the price of pig was put down to \$25, we will say, or \$30 or lower, the man who was under contract to buy \$50 pig would be at a distinct disadvantage because of his forehandedness in making provision for his wants as opposed to the man who got the \$25 pig, which was fixed. So that unless contracts for high priced basic commodities are suspended, or power is given to some agency to suspend them in this legislation, a large amount of the benefit would be destroyed and, more than that, a great deal of inequity would arise because of the differentials in price, the government price on the one hand and the contract price on the other.

"Those are the salient facts that we have deduced from these cost figures."

A Puzzle in Profits

"I am a little bit puzzled," said Chairman Newlands, "because I have an impression in my mind that in recent debates it was stated that the war profits of the United States Steel Corporation would amount to \$226,000,000 for last year. I am trying to reconcile that comparatively small amount of war profits with the assumption that the United States Steel Corporation, producing 20,000,000 tons of steel annually and selling it at an average profit of \$50 per ton, would have a profit of \$1,000,000,000."

"Allow me to suggest," said Senator Pomerene, "that the war profit is a profit over and above the average profits of the steel company for the years 1911, 1912 and 1913."

"And, Senator," added Mr. Davies, "I think you are going on a misapprehension. There is no \$50 profit on steel ingots, because steel ingots do not cost nearly that much and they are converted into other products, which require additional investment to produce. I presume that if the United States Steel Corporation could sell all of its billets at the current market price that obtained a couple of months ago, of \$100, and their costs on steel billets were in the neighborhood of \$35 to \$40, that they would make just exactly what you say they would make. As a matter of fact, they have not sold all of their product at that high price, and they have sold a large part of their product at low contract prices which obtained in the past, and they have refused, I am told, to sell some of their product, plates and shapes, at a price higher than \$5 a hundredweight, which would be \$100 a ton, practically, on the theory that it was an unhealthy and unstable condition for the market to get into."

Public's Exaggerated Ideas

At this juncture Mr. Wooster suggested that the public might gather from some of the statements made at the hearing that the Steel Corporation was making profits much in excess of those actually secured. While the market prices of the leading commodities were very high the Steel Corporation was at present refusing much business because obliged to fill contracts made at lower prices, and which have at least six months to run. Mr. Davies also disclaimed having said the Steel Corporation made \$50 per ton on its output.

"I understand," said Chairman Newlands, "and I am not suggesting that anything you said was misleading at all; but we want the facts to go out to the public as they are, and the average man, hearing of these high prices for steel, will assume that those prices would be currently received for the current product, and then it is a very easy calculation to make out enormous profits, and I think it is advisable that this inquiry should be clear of any exaggerated impression given to the public mind."

Effect of High Steel on Consuming Industries

Senator Pomerene then took up the subject of the effect of high prices of steel upon the industries of the country. Addressing Mr. Davies he said:

"I want to call your attention to another feature of this case which more than anything else has prompted me to favor some legislation along this line, and that is the effect that this high price of iron and steel is going to have upon the industries of the country; I mean that class of industries which use iron and steel

for their raw material, and if your studies have covered that branch of the question, I should be glad to have your views respecting it."

"It is very apparent," said Mr. Davies, "that these high prices and the projected coming into the market of the United States as a big buyer, are going to have a very serious effect upon the general manufacturing interests of the country; indeed, it is not only upon the manufacturing interests, but upon the consuming public, because where a man buys steel for the purpose of manufacturing, he passes his cost on to the consumer. As a manufacturer of stoves said, the other day, when he came up and complained to us, he hoped that this steel situation could be disposed of; that he was a large manufacturer of stoves and had 400 or 500 men in his employ, and that he had contracted for pig. He had been buying pig iron for \$50 a ton, but could not get any contract at all at any price for his requirements for the next four months. He stated that he could get the pig, but the price would be open—he could not get any price to be determined by the people furnishing the pig. He said, 'I have to make my price list based on the price I pay for pig; when I send a man out to the retailer, for the purpose of selling stoves, he must be able to quote him the price. I do not care what the cost of pig is, I can translate it into the cost of the stove and make the consumer pay for it, but I must have the price of pig; I do not care whether it is \$50 or \$75, but I must add it on to the price of my stoves.'

"If he can get the pig iron, its cost does not concern him very much, unless he is under contract to deliver in the future at a certain price."

Cannot Pass All Costs On

"But there are certain consumers," suggested Senator Cummins, "to whom you cannot pass on the cost so quickly—certainly this increased cost. Take the man who is putting up a big building. He finds that the structural steel has advanced from \$35 to \$40 a ton to \$140, and he does not build. He can wait. Again, take the case of a county or municipality that is about to put up new bridges, and they take account of the increased cost of material, and they conclude to build no new bridges, and make the old ones last for another year. These are but examples of tens of thousands of instances in which progress and construction and development have practically ceased in this country, according to my observation."

Public May Still Pay High Prices

"Yes, sir; that is undoubtedly true," assented Mr. Davies. "There is one factor that I think should be suggested in answer to Senator Pomerene's suggestion and that is one we have given a great deal of thought to, and that is the condition that the industrial part of our country is going to find itself in after this 5,000,000 or 6,000,000 tons of steel has been taken out of the market by the Government. If a price is fixed by agreement with the Government that shall apply also to the public—because, as I understand, the general consensus of opinion is now that the Government has power to fix the price of steel and other commodities for Government purchase, but it is questionable whether there is any power in the President of the United States to fix the price of steel for the general domestic consumers and private industries—if a low price is fixed for the Government, the situation will be aggravated as to the general public, because, with 5,000,000 or 6,000,000 tons taken out of the market, there will be a still less available supply; the demand will be just as keen or intensified, because the public realizes a large amount of its supply is going, and it will fear that prices will mount still higher, not because of any disposition of the steel makers to crowd in and take their profits, but because of the fact that the buyers will go in and bid against each other to get the steel, and will bid any price to get the steel, and force the price up.

Some Producers Will Profit

"If a situation develops where the Government fixes the price for steel and fixes it by agreement, so that it will extend the benefit to the public as well as the

Government, a question then arises as to whether any such agreement will stand up under the economic pressure of buyers who will be bidding against each other, in the absence of legislative power and authority to make it effective. We found in the news print situation, where we entered practically into an agreement with the industry that we would arbitrate the price of news print and would distribute the paper and fix the price, that after the price was fixed at \$2.50, which was a fair price, and after a large proportion of the manufacturers had agreed with us to abide by that price to the general public, we found that a certain portion of them—a small minority—would not come in and they proceeded to sell their paper at just as high prices as the market could give. They could sell it all, and it disadvantageously affected the men who were in the agreement to hold the prices down for the benefit of the public. It was, therefore, quite natural for a man to say, 'I am willing to be a patriot, but not a goat, and if this man is going to make a fortune for his family, because he does not consider the public interests, why should I hold the price down to \$2.50?'

"Because we lacked the power and authority to enforce the agreement, that effort resulted in a failure, to the extent it was a failure. So with steel, I fear, if any voluntary agreement is made to protect the public on the same basis as the Government is protected as to the price, that the economic pressure and the pressure of human nature will bring about still higher prices for the public. I think we are all in accord, in the Trade Commission, on the proposition that to bring any substantial permanent relief to the public on prices of this kind, if it is necessary that some agency should be clothed with power and authority to make their determination effective."

Protest from Stove Makers

Senator Pomerene here obtained permission to place in the record certain letters from iron and steel manufacturers which he said had an important bearing upon the problem under consideration. The first of these letters was addressed to the Senator by the Taplin-Rice-Clerkin Co., Akron, Ohio, manufacturer of stoves, furnaces and ranges, and demanded to know how the business interests of the country could be kept running full blast unless manufacturers can sell their finished product at reasonable prices. The writers declared that in their own case they were obliged to name prices which they considered almost prohibitive and beyond the reach of the wage-earner to pay, because they themselves were compelled to pay so much for their raw materials.

"Why were the railroads refused their 15 per cent increase in freight rates?" the writer asked. "I believe the Interstate Commerce Commission decided that their earnings of the past year did not justify additional toll from the public. This is a good argument, and I appeal to you that you apply the same argument against the metal, coal and coke companies as was used against the railroad companies."

A Pig Iron Prospectus in Evidence

One of the documents placed in the record by Senator Pomerene was a prospectus issued by the Bird Coal & Iron Co., with offices at 206 S. Wabash Avenue, Chicago, and with a blast furnace at Talledega, Ala., in which the statement was made that pig iron could be made at from \$12 to \$14 a ton and that well located producers could make great fortunes selling their output at less than current market prices. In reply to a letter addressed to this company by C. E. Bell of the C. S. Bell Co. of Hillsboro, Ohio, Glen C. Bull, vice-president and treasurer of the Bird Coal & Iron Co., stated that that company figured its labor cost per ton of iron at \$2, cost of mining brown ore at from \$1 to \$1.25, which would be substantially reduced by the use of the steam shovel, and the mining and loading of red ore at less than \$1.25. The cost of putting the company's own coal on the cars was figured at \$1.25 and freight at 38 cents. The company used one and a half tons of coal for a ton of coke and 1.33 tons of coke for each ton of pig. Assembling these figures the company claimed to make pig considerably under \$15.

Legal Aspects of the Pomerene Bill

Following the reading of these letters, Arthur W. Fairchild, special attorney for the commission, discussed at some length the legal and constitutional aspects of the Pomerene bill. He gave it as his opinion that price-fixing and regulation would not be admitted to be a taking of property without due process under the Fifth Amendment of the Constitution, but that it would be, assuming the exigency, within the power of the Government to fix the price and to regulate production, shipment, distribution and apportionment of products without taking the property. On the other hand, if the Government should actually commandeer a plant or the output it would constitute such a taking of property as, under the constitution, would require just compensation.

Several members of the committee debated the legal aspects of the bill at considerable length, after which Commissioner Davies drew the committee's attention to what he said was one of the most important phases of the problem. "I am firmly of the belief," said he, "that the full measure of relief that you expect to bring to the public by this proposed legislation will not ensue provided actual contracts that have been entered into in good faith prior to the fixing of price remain in force.

Three-fourths of the Coal Under Contract

"In the matter of coal, we find that some 75 to 80 per cent of the coal production of the country has been contracted for, apparently in good faith, prior to the fixing of the maximum price. I say 'apparently' for some of it is in good faith and some is not, and the Federal Trade Commission is now investigating it upon the direction of the fuel administrator. If these contracts stand, they will leave the fuel administrator in the situation where his price control will affect approximately only 15 to 25 per cent of the coal—that is, the coal which the domestic consumer and small industrial consumer are using—with the result that the relief which was anticipated has not come and the Fuel Administrator is now trying to bring about some change in that situation, as I understand it, by getting some of the contract coal released."

"Do you believe we can cancel outstanding contracts without making compensation?" asked Senator Cummins.

"Suspending" Contracts Proposed

"It is the same question," responded Commissioner Davies, "regardless of whether you make compensation or not. To bring the relief that you expect to give the public you must suspend these contracts."

"I do not quite understand the word 'suspend,'" said Senator Cummins. "Do you mean at some future time the contracts are to be revived and performed?"

"It has been suggested by some members of the War Industries Board," replied Mr. Davies, "that these contracts might possibly be suspended and revived after this exigency has disappeared."

"But we would have to act at the will of the persons who make these contracts," suggested Senator Cummins. "You should not suspend them and when conditions have changed require either party to perform them. And is it not true that, in view of the fact that the buyers of a large part of this fuel are in competition with each other, they must be able to buy on even terms or they cannot compete with each other?"

"That is absolutely correct," answered Mr. Davies; "and if you have contract prices for pig iron to-day at \$54 a ton and the Government should fix a price on pig iron at \$25, the man who has been provident and taken care of his wants for the future by entering into a contract for six months will be penalized because the

cost of his basic materials will be so much higher than those of the man who has not been provident."

"It seems to me," commented Senator Cummins, "that no matter what the consequences may be, if we are going to try to restore business to anything like its normal condition and give everybody an even chance, we must cancel these contracts."

"I think that is the idea," assented Mr. Davies.

Plate Mill Pig Iron at \$55

"And yet," said Senator Kellogg, "every railroad company buys its nuts, bolts and plates and all its iron practically on yearly contracts. There is not a great deal of \$55 a ton iron in the country."

"It is quite remarkable," said Mr. Davies, "the extent to which it has been contracted for at high prices in the last two months. There are a number of manufacturers who have come to us and said they have contracts for iron at \$55. There are two very large plate men—and the plates of the country are produced, at least 90 per cent of them, by eight companies—and as to these two we took their May costs on plates and found that they ranged from \$37 to \$49, and they stated to us that if they had to buy at the present contract rates their cost for plates would run up to \$54 and \$62. One of the large plate concerns has already contracted for pig iron at over \$50 up to next June, according to a statement it has made to us."

Chairman Newlands suggested that, in view of the universal use of iron and steel and of the power of the national Government to declare that any necessary article is "of public use," the Government might make such a declaration as to iron and steel and regulate it in interstate commerce. The national Government, he said, had never sought to regulate the use of water or electricity or gas in interstate commerce, but he was sure there was no doubt about its right to do so. Senator Pomerene expressed the belief, however, that the safest way to handle the matter was to base the action of Congress upon the President's war power.

W. L. C.

Hardinge Bros. to Build in Future

Hardinge Brothers, Inc., 1770 Berteau Avenue, Chicago, manufacturers of precision bench lathes and attachments, watchmen's portable clocks, watchmakers' tools and special machinery, have bought a plot of land and prepared plans for a factory in Berteau Avenue opposite their present location. The firm now occupies the second and fifth floors of the Deagan Building, the second floor having been taken and filled with new machinery a short time ago. Despite the additional room, the firm is again cramped for space. The business was established in 1890. Building operations will not begin until the cost of building materials become nearer their normal level.

In sending out its comprehensive and expensive catalogs, the firm also sends a slip on which the following is printed:

"We are believers in the old saying: 'Willful waste brings woful want.' We do not hesitate to send you this catalog for the asking and will cheerfully send you more if you want them, but if you find it is not exactly what you expected and have no use for it, please pass it to some machinist or factory superintendent, or return it to us by mail and we will reimburse you for the postage."

Canada is playing a big part in the shipbuilding industry of the world. No less than 74 steel boats of all kinds were under construction in the Dominion during July and August, these having a gross tonnage of 126,949. Of these, 25 are being built on the Atlantic coast, 30 on the Great Lakes and 19 on the Pacific coast. These do not include the large number of subchasers and other boats being regularly shipped to Britain by Canadian shipbuilding concerns.

FIFTH WAGE ADVANCE

U. S. Steel Corporation Again Grants Increase to Its Employees

E. H. Gary, chairman of the board of directors, United States Steel Corporation, last week announced that another increase of 10 per cent in wages of employees of the corporation would be made Oct. 1. This is the fifth advance granted by the Steel Corporation since the beginning of 1915. It is expected that independent steel companies will follow the corporation and make a similar announcement as to wages at an early date. Some of the smaller companies may, however, hesitate on account of the new schedule of prices announced at Washington. The White House announcement stated that it was agreed that there should be no reduction in wages, but nothing was said about any advance in the present schedule.

Jones & Laughlin Steel Co.'s Strike Unsettled

PITTSBURGH, Sept. 26—(By Wire).—The strike against the Jones & Laughlin Steel Co. still is unsettled; the trouble at the Eliza blast furnaces at Pittsburgh, which later involved the Soho blast furnace, continues. The strikers have been trying for a week or more to involve the Southside works, but without success. Some men at the Southside works have gone out, and while the plant is running only partially, it is due to lack of pig iron, the six Eliza and Soho furnaces still being banked.

Indications are that the trouble will be settled in a few days and the men return to work on the same working terms as before with the exception that the company will likely grant a general advance in wages to correspond with the advance by the Steel Corporation to be effective on Oct. 1. The Aliquippa Steel Works and blast furnaces have not been involved in the trouble in any way and are operating to utmost capacity.

General Advance Assured

PITTSBURGH, Sept. 26—(By Wire).—All the leading steel companies in the Pittsburgh, Youngstown and Wheeling districts will make a general advance of 10 per cent to take effect Oct. 1 the same as the Steel Corporation advance. This puts common labor at most blast furnaces and steel works on a basis of \$3.30 per day for a day of 10 hours.

Inquiry for Sheet Bars

PITTSBURGH, Sept. 26—(By Wire).—The Bethlehem Steel Co. has an inquiry out for 60,000 tons of sheet bars, but is not likely to buy until the price of tin plate is fixed for next year.

The American Steel Cleaning Co., Cleveland, has been incorporated with a capital stock of \$50,000 to engage in the contracting business in cleaning steel with high-pressure sand blast, using the Evans portable sand blast equipment. The company plans, among other work, to engage in the cleaning of the hulls of ships. A. E. R. Schneider is president, Albert Carter, vice-president and general manager; H. E. Humbel, treasurer and Frank J. Sullivan, secretary. The company's offices are at 240 Rockefeller Building, Cleveland.

The Homestead Valve Mfg. Co., Homestead, Pa., has almost completed the rebuilding of its manufacturing plant and office buildings, thereby adding about 75 per cent to its space. The company has added new machinery and equipment, especially in the foundry, where the production has been almost doubled in a short time.

PRIORITY IN STEEL ORDERS

First General Circular Issued—Three Classes Are Announced

WASHINGTON, Sept. 25.—The Priorities Committee of the War Industries Board of the Council of National Defense yesterday made public the contents of its first general priority circular, giving directions as to priority in orders and work for all individuals, firms, associations and corporations engaged in the production of iron and steel and in the manufacture of products thereof.

Under the set of regulations prescribed by the committee, all orders and work are divided into three classes: Class A, comprising "war work; that is to say, orders and work urgently necessary in carrying on the war, such as arms, ammunition, ships, etc., and the materials required in their manufacture"; Class B, comprising orders and work "which, while not primarily designed for the prosecution of the war, yet are of public interest and essential to the national welfare, or otherwise of exceptional importance"; Class C, comprising all orders and work not embraced in Class A or Class B.

Orders and work in Class A will take precedence over those in Class B, and both these classes will be given priority over Class C, irrespective of the date the orders were received. Class A and Class B will in turn be separated into subdivisions to be designated as Class A1, A2, A3, A4, etc., and Class B1, B2, B3, B4, etc., each composed of orders within the class which are regarded respectively as of greater moment and to be given precedence in accordance with its serial number. All materials required in the manufacture of an article or in the prosecution of any work will be entitled to take the class of such article or work unless otherwise specified.

For the administration of the regulations, certificates will be issued by the Priorities Committee upon application, specifying the classification of the order or work. Certificates of a subsidiary nature will be issued upon request for the furnishing of material and articles required in manufacturing the article or prosecuting the work ordered.

War orders of the Allies as well as of the United States will be placed in Class A. In the case of those already contracted for, all orders placed prior to the date of the circular by the War or Navy Department or the Emergency Fleet Corporation of the United States will be classed as subdivision A1 of Class A, unless otherwise ordered. Orders already placed by the Allies for war materials will be classed as subdivision A2 of Class A, unless otherwise ordered.

Applications for Class A certificates will be made to the committee by the contracting officer or agency of the United States, or, in the case of the Allies, by their authorized agent. Applications for subsidiary certificates covering materials, articles or work required in the manufacture of Class A products will be made by the contractor to whom the principal Class A certificate has been addressed.

Applications for Class B certificates will be made to the committee by the individual, firm, or corporation for the expedition of whose contract the priority order is desired; while subsidiary certificates for materials will as in the case of Class A certificates be applied for by the contractor to whom the principal Class B certificate has been addressed.

All orders henceforth will be classed as Class C unless covered by certificates of the Priorities Committee. No certificates will be issued for Class C orders.

The Priorities Committee is composed of Robert S. Lovett, chairman; Maj. Gen. J. B. Aleshire, George Armsby, Rear Admiral N. W. Mason, Edwin B. Parker, J. Leonard Replogle and Rear Admiral A. V. Zane. R. T. Demsey is executive secretary.

The Youngstown Pattern Co., Youngstown, Ohio, has increased its capital stock from \$20,000 to \$30,000 to provide more funds for plant extensions and working capital. The company is building a new plant 28 x 30 ft. which will nearly double its capacity.

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Steel Prices Fixed—A New Era

The uncertainty as to Government prices for steel products that for more than two months has held the trade in suspense has been ended in a way that may well prove to be epoch-making in the industry. Thirty representative producers of iron ore, coke, pig iron and finished steel products conferred with the War Industries Board at Washington on Friday and a tentative price schedule was made up covering the three raw materials named and plates, shapes and bars, the products in which the Government's war requirements are largest. On Monday the President announced the fixing of these prices and the agreement of the producers that they should apply equally to purchases by the Government, its Allies and the public, thus meeting the President's call in his well remembered proclamation of July 12 for "one price for all."

It should be said, to begin with, that the six prices named are to be followed shortly by others, which will cover the entire industry so far as the products of blast furnaces, steel works, and rolling mills are concerned. Presumably scrap will also be included. Billet and sheet bar prices must be fixed, differentials for the various grades of pig iron will be worked out from the \$33 base for No. 2 foundry iron and basic, at Northern furnace, and in line with bars at 2.90 cents, shapes at 3 cents and plates at 3.25 cents, prices will be named applying to Government, Allied and public buyers of rails, sheets, wrought pipe, tin plate, wire and other products.

While Monday's announcement ended the long uncertainty as to Government prices, it was by no means enlightening as to the immediate course of the steel market. The trade is full of questions to which there are as yet no authoritative answers. The men who conferred at Washington at the invitation of the War Industries Board, represented 80 to 90 per cent of the country's steel ingot production, probably a like percentage of the Lake Superior ore output, much more than a majority of the coke shipments from the Connellsville field and a large share of the merchant pig iron production in addition to that of the steel companies. They had no authority to bind the industry as a whole, but it need scarcely be said that anything they

agreed to would by that token be well-nigh established.

There was on record the desire of the President that an end be put to the excessive steel prices produced by the war and that the Government, the Allies and the public be treated alike. Broad powers had been put in the President's hands for war emergencies, powers which constructively might be made to cover the whole steel price problem. Immediately overhanging the situation was the Pomerehne bill for complete Government control of iron and steel, similar to existing control of food and fuel, and it was known to have the Administration's sanction. Another factor was the desire of the War Industries Board as well as of the President to have the readjustments in steel come through the co-operation of producers rather than by coercion. Finally, but highly important, was the desire of leaders in the steel trade to aid the Government in any readjustment that would forward the country's war aims.

While the new prices on plates, shapes and bars are lower than some of the steel conferees were prepared to accept, particularly in view of the Steel Corporation's last advance of 10 per cent in wages, which other producers have followed without question, it is to be considered that they are not far from the average prices on contract shipments in the past six months, on which the profits of integrated companies as well as of some that are but partly integrated have been quite satisfactory. With the readjustments on coke and pig iron, some companies of the latter class will still do fairly well. There will be certain hardship to a number of plants that must buy pig iron, even at the new \$33 price.

The extent of the reductions from existing market prices was exaggerated in the official statement given out at Washington. Spot coke was \$12.50 last week, rather than \$16, and in putting pig iron at \$58 the statement went to an extreme, since \$50 or less has been the recent level.

What will happen to the orders on the books of steel companies taken at prices above those agreed upon? The question has come from every quarter of the market in the past two days and has thrown the whole trade into confusion. The Lever bill provided that all existing coal contracts should

be carried out at the stipulated prices. But contract buyers of \$4 and \$5 soft coal would be at a serious disadvantage in competing with new buyers of such coal who paid but \$2. The Federal Trade Commission found that 75 to 80 per cent of the coal production was under contract, "apparently in good faith," when the new price was fixed, and meantime no \$2 coal is offered. The fuel administrator is now trying to have some of these contracts canceled.

In the case of steel, while considerable sales of plates were made all the way from 4 cents to 11 cents, and there are heavy tonnages of bars on the books at more than 2.90 cents and of shapes above 3 cents, large shipments are yet to be made of bars at prices close to the new basis, while 3-cent shapes have not disappeared from the books. On contracts still running at higher than the new prices the old question of price revision on a falling market must be squarely met. If a producer makes new sales at the prices just fixed he may find difficulty in persuading a competitor of the new buyer that he should continue to pay \$10 or \$20 a ton higher. Buyers under contract will not be able to get material from sellers other than those having their contracts, as has always been possible when prices have slumped, following a boom. In plates, as the Government plans to take a large percentage of the total output, the complication on contract readjustments will be less than in bars, for example. A fact of no small significance is that on many contracts for finished steel settlements are on the basis of current market quotations. On these the new prices would apply promptly.

But details of the new régime are unimportant in comparison with the fact that the highly complicated problem of steel prices is in process of being solved by agreement. The producers of steel saw great harm to the industry in some recent Government proposals based on costs of the most highly integrated companies. They have undertaken an entirely new alignment of prices on a co-operative basis which plainly marks the beginning of a new era.

It need not be expected that by a violent wrench values in all lines of production and consumption will be adjusted to the new basis. But it is also to be said that the iron and steel men who agreed to these prices at Washington have a keen sense of the obligation resting on them to "carry on." Having pledged themselves to give the public the same prices as the Government, they have set to work to make their word good. They know the difficulties are many, but the spirit in which they will work out the problem is that of finding a way to execute the Government program rather than of finding how not to carry it out.

It is to be kept in mind that the prices just fixed are subject to readjustment three months hence and meanwhile the advocates of Government control of iron and steel during the war will watch closely the course of the industry. There is every warrant for the prediction that the producers of steel, having agreed to the Government's plan—a thing that only a week ago seemed impossible—will in like manner rise to any situation that may grow out of their new responsibilities.

The Steel Industry's Wage Advance

The wage advance in the iron and steel industry announced in the case of the Steel Corporation to become effective Oct. 1, is the fifth advance of approximately 10 per cent made since the war started. The four preceding advances became effective on Feb. 1, May 1 and Dec. 15 of last year and on May 1, 1917.

In THE IRON AGE for July 20, 1916, there was reproduced a chart which had been prepared by the Republic Iron & Steel Co., showing, in comparison with market prices of steel products, the prevailing wage rates for common labor in the steel mills of the Central West between 1899 and 1916. From April, 1899, to July, 1916, there were but two wage reductions, the first covering the period from June, 1894, to May, 1905, and the second covering 60 days only, beginning in April, 1909. Outside of the advances that were offset by these reductions, there were six up to and including the one early in 1913. The common labor wage rate in 1913-4-5 was shown to have been about \$1.95, or 26 per cent more than the rate in 1907, and 35 per cent more than the rate in 1902. The five successive advances that have taken place recently, if set at 10 per cent each, would make about 60 per cent altogether, and thus the total advance in less than ten years has been about 102 per cent.

While some comment has been made upon the fact that wages are increased in the iron and steel industry at a time when prices are declining, it is to be observed that the vital fact is that prices realized upon shipments are increasing, owing to the completion of the older and lower-priced orders. This increase promises to continue for some time to come, and open market prices could continue to decline for quite a while, at the moderate pace of the past few weeks, before the two items would come together.

The United States Steel Corporation's annual statement of tonnage output, wages and salaries paid, etc., furnishes a suggestion as to wage costs per ton in the case of a fully integrated producer, and one that on the whole has carried labor-saving operations in the majority of its plants, to the modern limit. The data for the Steel Corporation for 1916, with the increases over 1915, are given below:

	1916	Increase
Tons steel for sale.....	15,460,792	\$1.5 per cent
Number employees	252,668	\$2.2 per cent
Total salaries and wages.....	\$263,385.502	49.0 per cent
Salaries and wages, per day.....	\$3.36	11.6 per cent

Dividing the total salaries and wages paid by the number of tons of steel produced for sale would give about \$17 per ton. It is to be noted, however, that the salary and wage cost, including the conducting of transportation, which engaged nearly 10 per cent of the employees, and the manufacturing of such other products as cement, spelter, etc., and excluding the salaries of executives, etc., is still less per ton of steel. It does not represent an average, however, as the 15,460,792 tons of steel products for sale included such widely different items as 1,881,526 tons of blooms, billets, slabs and sheet and tin plate bars, 1,786,642 tons of sheets and tin plates, 1,338,892 tons of welded and seamless

tubular goods, and 95,096 tons of spikes, bolts, nuts, rivets and washers.

As the three wage advances of 1916 became effective, respectively Feb. 1, May 1 and Dec. 15, only about one-half the effect, approximately, was reflected in the statement for 1916, which deals with totals or averages. A year's operation based on the rates about to become effective would show approximately \$23 instead of the \$17 computed from the 1916 returns.

Producers employing less labor-saving machinery than the mills and furnaces which carry this practice to the extreme are at a disadvantage, when wage advances occur, in that their costs are increased in larger measure. They have but one clear offset, and that is that in times of depression, when prices are very low and works must close, they lose less in interest on investment than do the manufacturers who employ capital rather than labor.

Exemptions Needed for War Deliveries

For its own protection as well as that of the manufacturer the Government should act as speedily as possible to insure the exemption from military duty of skilled mechanics whose services are needed in the shop for the proper execution of war orders. Men skilled in the production of the tool-room equipment needed in every arsenal and navy yard and of which our supply is woefully inadequate should be left to pursue their work on Government orders, in view of the fact often reiterated that the war must be won by machines and of the further fact that we lack machines of the requisite kinds.

The manager of a Middle Western plant manufacturing precision tools, for the production of which workmen of unusual skill and experience are required, said lately with no inconsiderable show of heat, as he walked through one of his shops:

The Government is pounding us for deliveries, yet is taking our best men away, and against our protest. Three have gone, and that man over there, the best finisher I have in the shop, is to be the next. Here is a machine—if it is ever finished—that is wanted at Norfolk, and there is one for Frankford.

This manager's appeals to the local exemption board had been without result, and to his protest sent to Washington no satisfactory reply had been received, despite the fact that the machines he has under construction for the Government are as important as guns themselves.

Once realized, the condition should be smoothed out quickly, and small or moderate-sized shops doing important Government work should receive as fair a hearing as that accorded to large and powerful ones. The smaller shops are harder hit, proportionately, for the reason that their smaller working force lacks flexibility. Doing one kind of skilled work, they may have but a few men, and when the best of these are taken the shop is crippled, the result being delayed delivery and, it is no exaggeration to say, distress of mind on the part of good citizens trying to serve their country with their brains, technical knowledge and experience.

This country should profit by the experience of

its European Allies and not be compelled to recall from the ranks men who are needed for the preparatory work at home.

British Check on Electric Steel

World progress in electric steel has been given a sudden check. The order of the British authorities, referred to elsewhere in this issue, suspending except under license work on unfinished or contemplated installations of electric furnaces has come as a surprise. Outside of the United States no country has made more rapid progress since the war in this important industry than Great Britain, unless it be Germany, concerning which details are lacking. Not only did the British electric steel production in 1916 more than double the 1915 output, but in number of furnaces Great Britain held second position, having passed Germany. So far this year equally rapid strides have been made both in output and equipment, the furnaces in that country exceeding 120 as compared with 88 in 1916.

Some of the reasons given for the new order are scarcity of labor and materials, electrodes and current, but principal emphasis is put on the statement that such plants are non-essential to war requirements. It is a question if an error has not been made in considering electric steel or electric furnaces unnecessary under war conditions. For most purposes the British authorities evidently regard acid open-hearth steel, which is produced there in large quantities, sufficiently good for war purposes. For certain castings for automobile, motor truck and airplane construction, nothing better can be made than electric steel, with its unusual dynamic and static endurance under stress. For airplanes, electric steel furnishes unusual shapes, light and strong, not equaled by other steels, especially after modern electric heat treatment. As for tool steel, no better vehicle exists than the electric furnace; for making large quantities of high speed and other steels safely and of uniform quality it easily outstrips the crucible furnace. The demand for tool steel for machining shells and projectiles is very heavy.

A new phase of this question is the ready adaptability of the electric furnace for making high-grade pig iron. Under present conditions in Great Britain this opportunity should have considerable weight. The low-phosphorus iron required to keep England's large acid open-hearth furnaces in operation is growing scarcer, and earnest efforts are being made by the authorities to substitute basic iron. This involves a change of acid furnaces to basic—a difficult matter in present times. It would seem that serious consideration should be given to the conversion of the probably large quantities of British scrap munition steel, borings, etc., into pig iron in electric furnaces. In any case, there is no better medium for economically using borings and small scrap steel than the electric furnace, whether the desired product be steel or pig iron.

In view of the fact that since the announcement of Government prices on Monday no transactions have been reported in pig iron in some market centers, THE IRON AGE for the first time omits quotations on some grades of pig iron from its "Comparison of Prices."

Benzol and Toluol Markets

Present production of toluol, though the largest in the history of the United States, is not all that the Government requires and steps have been taken by the Council of National Defense to devise ways and means of increasing production. By-product ovens have been installed by nearly all of the steel plants in the country in a position to do so, so that any large increase in production must come from the gas companies, which are now being urged to recover benzol and toluol. The United States Steel Corporation is putting in a few new by-product ovens, which will be in operation shortly after the first of next year. Companies which produce toluol are delivering practically their entire output for Government use, and the use of our allies, at \$1.50 per gal. It is estimated that fully 90 per cent is going into explosives, the remaining 10 per cent being used in dyestuffs, intermediates and pharmaceutical products. The toluol as rapidly as produced is delivered to chemical manufacturers for conversion into trinitro-toluol. Existing contracts have from six to 12 months to run, and the first that expire, which will be in March, will be promptly renewed, according to present indications. This Government is regulating the amounts of toluol which its allies shall receive. Prices in the open market for limited quantities available are about \$1.75 per gal.

In benzol, the situation is somewhat easier. The large production of toluol has brought about a correspondingly large production of benzol, which is in excess of immediate requirements. Another factor which has weakened the market is the reduction in quantities exported to France. Scarcity of bottoms has made it necessary to store some of the benzol consigned to France in this country, and in some instances that country has ordered its conversion here into picric acid. Thus plants which otherwise would be engaged in making picric acid for the United States Government are working on French contracts, and consumption of benzol is therefore not as large as it would be if ships were available to carry consignments to France. Prices have eased in the past month from 55 to 60 cents per gal. to 50 to 55 cents, the inside price being usually for fairly large lots on contract.

The sulphate of ammonia market is strong. The by-product ovens are delivering their output to fertilizer manufacturers on contracts, which generally have some time yet to run. Prices are largely nominal, and such lots as are available in the open market have been quickly sold, chiefly for export, there having been a good demand from other countries.

Will Build Coke Ovens

The Steel Co. of Canada, Hamilton, Ont., has awarded contracts to the Wilpute Coke Oven Corporation of New York, for the installation of by-product coke ovens at the company's plant at Hamilton to cost \$1,500,000. From this it is evident that the easing up now in process as regards munitions orders has in no way affected adversely the company's plans for extending the scope of its peace-time operations through the medium of plant betterment both as to facilities and general equipment.

The annual meeting of stockholders of the Youngstown Iron & Steel Co., whose entire capital stock is owned by the Sharon Steel Hoop Co., Sharon, Pa., was held in Youngstown, Ohio, last week. All former officials and directors were re-elected as follows: Severn P. Ker, president; G. W. Short, first vice-president; W. G. Kranz, second vice-president; J. Reid Evans, secretary and treasurer. C. B. Cushwa, H. W. Heedy, J. O. Pew, G. F. Danielson and F. C. Perkins with the above constitute the board of directors. The officials and directors of the Sharon Steel Hoop Co. and the Youngstown Iron & Steel Co. are the same. C. B. Cushwa is general manager of the plant of the Youngstown Iron & Steel Co., and two 80-ton open-hearth furnaces are being added to that plant.

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Steel Prices Are Fixed by Agreement

Government, Allies and the Public Put on the Same Basis—War Industries Board to Supervise Output of Steel Mills—Pig Iron at \$33

WASHINGTON, Sept. 25.—President Wilson yesterday gave his formal approval to a scale of prices to govern the sale of iron ore, coke, pig iron and steel bars, shapes and plates to the Government, the Allies and the American public. On Sept. 21, a uniform price was fixed for copper. While in both cases the prices fixed were presumably based upon costs of production ascertained by the Federal Trade Commission, as a matter of fact they were agreed upon at conferences between the leading producers and officials of the War Industries Board.

The price of copper was fixed at 23½c. per pound. The iron and steel schedule was as follows: Iron ore at lower lake ports, \$5.05 per gross ton; coke at Connellsville, \$6 per net ton; pig iron, \$33 per gross ton; steel bars (Pittsburgh-Chicago), \$2.90 per hundred pounds; shapes, \$3, and plates, \$3.25. The announcement concerning the steel prices was made by the committee on public information shortly after noon yesterday, in the form of the following bulletin:

"The President has approved an agreement between the War Industries Board and the steel men, fixing the following prices, which become effective immediately, and are subject to revision Jan. 1, 1918, viz.:

Commodity	Basis	Price Agreed Upon	Recent Price	Reduction—Amount	Per Cent
Iron ore	Lower Lake ports	\$5.05 g.t.	\$5.05 g.t.	.....	...
Coke	Connellsville.	6.00 n.t.	16.00	\$10.00	62.5
Pig iron	.....	33.00 g.t.	58.00 g.t.	25.00	43.1
Steel bars	Pittsburgh-Chicago..	2.90 cwt.	5.50 cwt.	2.60	47.3
Shapes	Pittsburgh-Chicago..	3.00 cwt.	6.00 cwt.	3.00	50.0
Plates	Pittsburgh-Chicago..	3.25 cwt.	11.00 cwt.	7.75	70.5

"It was stipulated, first, that there should be no reduction in the present rate of wages; second, that the prices above named should be made to the public and to the Allies, as well as to the Government, and, third, that the steel men pledge themselves to exert every effort necessary to keep up the production to the maximum of the past, so long as the war lasts.

"Measures will be taken by the War Industries Board for placing orders and supervising the output of the steel mills in such manner as to facilitate and expedite the requirements of the Government and its Allies for war purposes, and to supply the needs of the public according to their public importance and in the best interest of all, as far as practicable.

"A spirit of co-operation was manifested by the steel men, and no doubt is entertained that every effort will be made to bring the production as nearly as possible up to the extraordinary demands resulting from the war."

The above is printed just as given out. The designation "cwt." is an error. It should be "100 lb."

The Copper Price

A similar announcement concerning the fixing of the price of copper f.o.b. New York stated that the rate agreed upon was "subject to revision after four months."

"The War Industries Board," the copper bulletin continued, "felt that the maintenance of the largest production should be assured, and that a reduction in wages should be avoided. The stipulation that present wages shall not be reduced compels the maintenance of the highest wages ever paid in the industry, which

without such stipulation would, with the reduction made in the price of copper, be reduced under the sliding scale so long in effect in the copper mines. Within this year copper has sold as high as 36c. per pound, and the market price would now be higher than it is had it not been well known for some weeks that the Government would fix the price.

"The principal copper producers throughout the country have evinced an admirable spirit, and for weeks have promptly supplied every request of the Government for copper without awaiting decision as to price and agreeing to accept the price which the board should ultimately fix. The proper departments of the Government will be asked to take over the mines and plants of any producers who fail to conform to the arrangement and price, if any such there should be."

Conference Agreement on Steel

The agreement as to steel prices was made after two full days' conferences at the headquarters of the Council of National Defense, presided over by Bernard M. Baruch and participated in on behalf of the Government by Robert S. Brookings, buyer of finished products, and J. Leonard Replogle, assistant to Mr. Baruch in the purchase of steel, and on behalf of the producers by Judge Gary of the United States Steel Corporation, and representatives of other steel companies who have heretofore been members of the steel committee of the Council of National Defense. There were numerous inquiries as to the particular kind of iron ore upon which the price was fixed; also as to the grade of pig taken as a basis, but no public explanation was given. While all officials of the Federal Trade Commission were very reticent respecting the agreement, it was evident that some of them at least consider the price of pig iron as compared with plates to be proportionately high and as calculated to render it difficult, if not impossible, for small producers to buy pig at the controlled price and make plates to sell at \$3.25 per hundred pounds.

Pomerene Bill May Not Be Pressed

Interest in the announcement of controlled prices for iron and steel was greatly increased by the disclosures made by Joseph E. Davies of the Federal Trade Commission in the hearings before the Senate Interstate Commerce Committee on Senator Pomerene's price-fixing bill, reported elsewhere in this issue, in which the commissioner pointed out the adverse effect upon small producers of high controlled prices for ore and pig iron and warned the committee that no real measure of relief could be afforded steel consumers which did not provide for the abrogation of contracts for raw materials made in recent months at unprecedented prices.

Considerable speculation is being indulged in as to whether the promulgation of controlled prices by the War Industries Board will put an end to the agitation for the passage of the Pomerene bill. Certain advocates of the measure, including its author, take the view that a voluntary agreement between the War Industries Board and the representatives of a few big corporations is a less satisfactory basis upon which to proceed than would be a well conceived statute giving the President full power to enforce any schedule of controlled prices that might be determined upon. There

is no doubt, however, that the inclusion in the agreement announced yesterday of the requirements of the American public, as well as those of the Government

and the Allies, will reduce the probability of action on the Pomerene bill, at least at the present session.

W. L. C.

Opinions of Producers on the Fixed Prices

Elbert H. Gary, chairman United States Steel Corporation, had the following to say regarding the Government's findings on steel prices:

"The base prices for iron ore, pig iron and the leading steel products in which the Government is especially interested, as fixed by the President, while much lower than the prevailing market prices and considerably below the expectations of manufacturers, yet, taking everything into consideration, I believe are fair and reasonable and come within the conditions named by the President in his proclamation issued last June.

"These prices were probably made in accordance with the recommendation of the War Industries Board, which gave a patient hearing to the steel representatives and made an exhaustive study of the whole subject. While the manufacturers may feel a sense of disappointment they, nevertheless, appreciate the courteous and frank treatment on the part of the board, and they will cheerfully acquiesce and do everything possible to maintain production to the maximum as long as the war continues; and they will not decrease the wages of their workmen under present conditions."

E. A. S. Clarke, president Lackawanna Steel Co., said that the prices were fair, and added that now that uncertainty over Government action was over, the producers were in position to go ahead under full speed. "The steelmakers are now able to cut their cloth to fit the measure," he stated, "and while the prices are not as much as were expected in some quarters, still they are high enough to enable the producers to maintain output at current levels. Steel men have the opportunity of 'doing their bit' in keeping production on a scale great enough to win the war. That is the most important thing.

"There are, perhaps, old steel plants whose production costs are so high that not much profit can be made at the prices named by the President, and there also are plants which have been reopened after long idleness in order to take advantage of the high prices of the last two years, whose operations may be adversely affected. But taking the industry as a whole I should say that the return promised by the fixed prices was satisfactory."

Coke Price will Keep Up Production

Scott Stewart, general manager of W. J. Rainey, who is secretary of the coke committee created by the Council of National Defense, comments as follows: "The \$6 price on furnace coke fixed by the President after conference with the War Industries Board, while not as high as the operators may feel entitled to receive, is nevertheless a price sufficiently high under present conditions to stimulate the industry by removing the uncertainty heretofore existing in connection with adverse governmental price fixing. The fair and broad-minded attitude shown by the President and the War Industries Board in dealing with this question is an assurance that the coke operator need now have no fear of Governmental action detrimental to the industry and undoubtedly every effort will be made not only to maintain but if possible to increase coke production in order to do our part in accomplishing the successful termination of the war."

Views from Pittsburgh

PITTSBURGH, Sept. 25.—Edmund W. Mudge, president Edmund W. Mudge & Co., Ella Furnace Co., Claire Furnace Co., Reliance Coke Co. and the Westmoreland Connellsville Coal & Coke Co., large factors in coal, coke, ore, pig iron, steel and other products, gives his views as follows:

Will Sell at Government Prices

"In reply to your request for expression of opinion on the prices arranged between the manufacturers and the Government on iron and steel articles, such as coke and

iron ore, would say that our different interests are entirely satisfied with the base prices arranged for in Washington. We consider them extremely fair for all concerned, the large manufacturer and small manufacturer. The schedules that were worked out and others that are contemplated should allow every manufacturer of iron and steel to make a fair profit and should allow the maximum production that can possibly be produced in this country. We feel, however, that some adjustment should be made by the Government on coal prices, as their figure of \$2 is most too low to secure the maximum production and reasonable profit that is absolutely necessary under the present extraordinary condition of affairs.

"We feel that the war purchasing commission, under whose jurisdiction the Government prices for steel were arranged, showed from the start a splendid disposition to be fair with the pig iron and steel interests, both large and small, and did its utmost to arrive at the base price that would be eminently fair to all concerned. Robert S. Brookings, who was prominent in the conference in Washington last week as the Government representative, was splendidly informed and won at once the entire confidence of the steel manufacturers in session. He put forth the position of the Government in a way that commanded the highest admiration of everyone in the session. I deem it a great privilege to state that the entire resources of all the companies of which I am head are absolutely at the disposal of the Government. Our pig iron and other products that come under the Government prices we intend to sell absolutely at those prices, and we stand ready to aid the United States Government in its war for democracy in any way that we may be called upon."

Coal Price Too Low

James A. Campbell, president Youngstown Sheet & Tube Co., Youngstown, Ohio, one of the largest producers in the country of coal, by-product coke, pig-iron, Bessemer and open-hearth steel, and in fact nearly all kinds of finished steel, gives his view of the Government steel prices as follows:

"My opinion is that the prices, while rather low, will stabilize the steel business of the country and in the end will be a good thing for most of the producers and the consumers. Some steel plants which are not self-contained and do not have their own supply of pig iron and raw materials will be obliged to make some sacrifice, but the Government stands ready to assist them in every way in order to enable them to provide the different products they manufacture at a price that will enable them to make at least a small profit. These plants will not be obliged to pay the excess war profits like those that are self-contained, and after these taxes are paid all steel companies, whether large or small, will be on the same basis. The coke price I regard as being a very fair one. I think the Government price of \$2 on coal is entirely too low, and should be advanced to at least \$4 per ton, or higher. I think the Government is showing a commendable disposition to be absolutely fair with the big steel interests, and in conclusion I do not think that any just criticisms can be made on the prices it has established on the fundamental articles of iron and steel manufacture. In turn, the steel manufacturers stand shoulder to shoulder to help the Government in every way they can with their steel plants and blast furnaces and all other resources they have."

H. D. Westfall, general manager of sales La Belle Iron Works, Steubenville, Ohio, large manufacturer of pig iron, open-hearth steel, plates, pipe, steel sheets, steel cut nails and other products, also a large coal and ore producer, gives his views as follows:

"We are inclined to regard the prices just announced as being ultimately fair and reasonable, al-

(Continued on page 778)

Iron and Steel Markets

STEEL TRADE IN CONFUSION

Pig Iron Sold at \$33 and Coke at \$6

Mills So Heavily Booked that New Finished Material Prices Have Little Immediate Effect

Since the announcement on Monday of the prices agreed upon by the Government and leading steel producers the trade has been in utter confusion. Surprise that the prices were agreed upon rather than imposed by the Government was followed by excited efforts to get details which thus far are lacking, and to determine the status of contract prices. In the meantime business practically stopped.

While only six products are named in the announcement, including the three forms of finished steel which the Government will buy most largely, prices on other products will be worked out and put into effect later. On billets, a pivotal intermediate product, strangely omitted from the first list, a \$15 advance over pig iron may fairly be expected. In two of the products not yet fixed—wire and wrought pipe—the market prices lately maintained by the leading producer would be nearly in line with the new schedule on plates, shapes and bars.

Because of the large tonnages on the books of the steel mills, much of it at higher prices, there is the view that the new schedule will have little effect for some time on private transactions. Yet there are contracts on which monthly settlements are based on current market quotations. These will automatically be adjusted to the agreed prices and the effect of this on other contracts is not to be overlooked. But the situation is unlike that of past declines, since buyers who might fail to specify on their contracts cannot now find hungry mills waiting to supply them.

For manufacturing consumers of steel whose products have not advanced in proportion to steel, the new prices meet a situation that was increasingly difficult. But now there loom up the priority regulations from Washington and the prospect that with increased buying from the Allies at the low prices, there will be less material for distribution to non-war industries. Government control of steel works output is tightening steadily and it is intimated that even licenses to buy may in time be required.

Much of the upheaval over the new agreement was due to the vagueness of the Washington statement. The iron ore price of \$5.05, it develops, applies to non-Bessemer Mesaba ore and is the same as the contract price for 1917 shipments. The \$33 pig iron price, it is explained, is for basic or No. 2 foundry iron at Northern furnace. On other grades differentials will be worked out by the pig iron committee. On Southern iron the furnace price will be low enough to allow for freight to the North.

That the prices named at Washington are to be made effective promptly on new transactions appears from the quoting of basic pig iron at \$33 at Valley furnace by two producers in the Central West and by the sale of 5000 tons of Bessemer iron at \$36.30 at furnace, the tentative differential on Bessemer being put at 10 per cent over basic. Several producers of foundry iron announce their willingness to book orders at \$33 for No. 2, as against \$50 one week ago.

Coke producers have started off at once to establish the \$6 basis. On two contracts which call for the fixing of the price according to the market from day to day, shipments of furnace coke have already been made at \$6. However, the coke trade is well booked ahead, and there will be no large amount of \$6 coke available for some time. Only recently long-time contracts were entered into at \$8.50, and these are expected to be carried out.

The raising of the Government price on coal is pointed to by the \$6 price for coke and by the fairness of the agreements on copper and steel, and \$2.50 and \$2.75 are suggested prices, a new argument for the advance being furnished by the extravagant demands of the bituminous miners.

The steel and other committees of the American Iron and Steel Institute will resume their activities within a week, now that the industry has been put upon a co-operative basis, and the prices of all iron and steel mill products will then be worked out. Apparently the Government expects the large producers, under their agreement to stimulate production, to find a way to supply raw materials to the smaller producers in certain lines, particularly plates, so that they can take their share of Government and Allied contracts.

It is estimated that 7,000,000 tons of steel products for the Government and its Allies will be scheduled in the next 60 days to be provided for by the steel companies in the coming year.

The offering in the United States of Canadian billets has been cited as an indication of supply there overtaking demand. Yet it is known that the British Government is inquiring for 400,000 tons of shell steel from the United States and has yet to take 600,000 tons on existing contracts in this country.

Larger buying by France and Italy are talked of, now that prices have been fixed. A recent sale of 4000 tons of open-hearth billets for Italy was made at \$60 at mill. Railroad requirements of these countries are considerable and there is still the staggering railroad and equipment program that must be undertaken for Russia. Domestic railroads are practically covered for 1918 and some rail orders are already on the books for 1919.

Pittsburgh

PITTSBURGH, Sept. 25.—(By Wire).

Elsewhere in this issue are printed the views of a number of the leading pig iron and steel producers in the Pittsburgh, Youngstown and Wheeling districts on the new Government prices for iron and steel. These views are a unit in declaring that, as a whole, the prices

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron,	Per Gross Ton: Sept. 26, Sept. 19, Aug. 22, Sept. 27,			
	1917.	1917.	1917.	1916.
No. 2 X, Philadelphia...	.....	\$50.00	\$53.00	\$19.50
No. 2, Valley furnace....	\$33.00	50.00	53.00	18.50
No. 2 Southern, Cin'ti....	.....	49.90	49.90	17.40
No. 2, Birmingham, Ala. ....	.....	47.00	47.00	14.50
No. 2, furnace, Chicago*....	.....	54.00	55.00	18.00
Basic, del'd, eastern Pa....	45.00	48.00	50.00	19.75
Basic, Valley furnace....	33.00	42.00	52.00	19.00
Bessemer, Pittsburgh....	37.25	50.95	53.95	22.95
Malleable Bess., Ch'go*....	.....	55.00	55.00	19.00
Gray forge, Pittsburgh....	.....	46.95	46.95	19.20
L. S. charcoal, Chicago....	.....	58.00	58.00	19.75

Rails, Billets, etc., Per Gross Ton:				
Bess. rails, heavy, at mill	38.00	38.00	38.00	33.00
O.-h. rails, heavy, at mill	40.00	40.00	40.00	35.00
Bess. billets, Pittsburgh...	60.00	65.00	80.00	45.00
O.-h. billets, Pittsburgh...	60.00	65.00	80.00	45.00
O.-h. sheet bars, P'gh....	70.00	75.00	85.00	45.00
Forging billets, base, P'gh	90.00	100.00	115.00	69.00
O.-h. billets, Phila.	70.00	75.00	90.00	48.00
Wire rods, Pittsburgh...	85.00	90.00	90.00	55.00

Finished Iron and Steel,				
Per Lb. to Large Buyers: Cents. Cents. Cents. Cents.				
Iron bars, Philadelphia...	4.935	4.935	5.185	2.659
Iron bars, Pittsburgh....	4.75	4.75	4.75	2.60
Iron bars, Chicago.....	4.50	4.50	4.50	2.35
Steel bars, Pittsburgh....	4.00	4.00	4.00	2.60
Steel bars, New York....	4.195	4.195	4.695	2.769
Tank plates, Pittsburgh...	8.00	8.00	9.00	4.00
Tank plates, New York....	8.195	8.195	10.195	4.169
Beams, etc., Pittsburgh...	4.00	4.00	4.00	2.75
Beams, etc., New York....	4.445	4.445	4.669	2.769
Steel hoops, Pittsburgh...	5.75	5.75	5.75	3.00

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

Sheets, Nails and Wire,	Sept. 26, Sept. 19, Aug. 22, Sept. 27,			
	1917.	1917.	1917.	1916.
Per Lb. to Large Buyers: Cents. Cents. Cents. Cents.				
Sheets, black, No. 28, P'gh	8.50	8.50	8.50	3.00
Sheets, galv., No. 28, P'gh	9.50	9.50	10.00	4.25
Wire nails, Pittsburgh....	4.00	4.00	4.00	2.60
Cut nails, Pittsburgh....	4.65	4.65	4.65	2.60
Fence wire, base, P'gh....	3.95	3.95	3.95	2.55
Barb wire, galv. P'gh....	4.85	4.85	4.85	3.45

Old Material, Per Gross Ton:				
Iron rails, Chicago.....	\$40.00	\$44.50	\$40.50	\$19.25
Iron rails, Philadelphia...	43.00	43.00	45.00	20.00
Carwheels, Chicago	30.00	32.50	29.00	11.75
Carwheels, Philadelphia...	32.00	32.00	34.00	15.50
Heavy steel scrap, P'gh....	33.00	33.00	31.00	16.50
Heavy steel scrap, Phila.	30.00	30.00	33.00	14.75
Heavy steel scrap, Ch'go....	30.00	31.00	30.00	16.25
No. 1 cast, Pittsburgh....	30.00	30.00	30.00	15.00
No. 1 cast, Philadelphia...	30.00	30.00	33.00	16.00
No. 1 cast, Ch'go (net ton)	18.00	24.00	24.00	12.25
No. 1 RR. wrot, Phila....	43.00	43.00	45.00	20.00
No. 1 RR. wrot, Ch'go (net)	34.00	34.00	34.00	16.50

Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt....	\$6.00	\$12.50	\$15.00	\$3.00
Furnace coke, future....	6.00	8.50	10.00	2.85
Foundry coke, prompt....	...	13.50	14.00	3.25
Foundry coke, future....	...	12.00	12.50	3.50

Metals,				
Per Lb. to Large Buyers: Cents. Cents. Cents. Cents.				
Lake copper, New York...	23.50	26.25	26.50	28.00
Electrolytic copper, N. Y.	23.50	26.25	26.50	28.75
Spelter, St. Louis.....	8.25	8.12 1/2	8.50	8.75
Spelter, New York.....	8.50	8.37 1/2	8.75	9.00
Lead, St. Louis.....	7.82 1/2	7.87 1/2	10.50	6.85
Lead, New York.....	7.95	8.00	10.62 1/2	7.00
Tin, New York.....	62.00	61.75	61.75	38.62 1/2
Antimony (Asiatic), N. Y.	15.00	15.00	15.00	11.00
Tin plate, 100-lb. box, P'gh.	\$12.00	\$12.00	\$10.00	\$5.75

are fair to the steel trade, and while somewhat lower than was generally expected, they will not work a hardship to the leading makers of pig iron and steel products, but to the smaller concerns that are not self-contained in the matter of ore, coke and pig iron, they will allow only a very moderate margin of profit. This will be offset, however, by the fact that the larger steel companies which enjoy the lowest costs will be compelled to turn back to the Government their excess profits over their smaller competitors, so that in the end, both large and small pig iron and steel producers will be practically on the same basis as regards net profits after all Government taxes have been met. To the large steel companies that have been furnishing immense quantities of steel to the Government for many months on the basis of 2.50c. for steel bars and shapes, and 2.90c. for steel plates, chief among these being the Carnegie Steel Co., the Government prices will really allow a larger amount of profit. This statement may sound unreasonable, but it is true that the Government prices on steel plates, shapes and bars are on the average at least \$5 per ton higher than the Carnegie Steel Co., Jones & Laughlin Steel Co. and many other concerns have been realizing from sales to the Government for many months past. These self-contained steel interests will be able to make satisfactory profits at the Government steel prices, and will be in position to turn over to the Government large excess profits as their contribution to meeting the stupendous expenses of carrying on the war. The Government will realize from the smaller steel interests that are not self-contained only a moderate excess war profit tax, and perhaps from a very few of the smallest steel companies they may not be able to realize in their operations for some months to come more than the profit allowed them by the Government, before the excess war tax starts. It is a remarkable fact that since the Government started to buy war steel, the United States Steel Corporation alone has furnished 78 per cent of all the steel in various forms bought by it, and it is also

true that for some months, 90 per cent of the entire output of plates, shapes, bars and other materials made by the Carnegie Steel Co. has been going to the Government, mostly on direct orders, but a small amount on indirect orders. The consensus of opinion is that Government steel prices will have the immediate effect of stabilizing not only the steel business, but all business in general. For nearly two years, the steel business has been on a fictitious basis, brought about largely by the fact that domestic consumers were bidding against each other with the mills, trying to get their orders placed. This ran up prices on pig iron, billets, sheet bars and finished to absolutely unheard of figures. It now seems that the day of 10c. plates, 5c. to 6c. steel bars and other prices in proportion has gone, and that the steel business will quickly return to a safe, sane basis. The new Government prices on steel do not affect existing contracts on any materials that were made at flat prices, but on sliding scale contracts for pig iron and other materials, most of which are based on prices quoted in THE IRON AGE, they will be affected in the fact that average monthly prices from this time on will be much lower. The Government price of \$6 per ton on coke is regarded by coke producers as very liberal, but it is recognized that a spread of \$4 per ton between prices on coal and coke is too great and the chances are that within a very short time, the Government will revise its price of \$2 per ton on bituminous coal named some time ago, and place it probably on a \$2.75 or \$3 basis. The producing and consuming steel interests are now digesting the new Government prices, and it may be a few days before business starts off at the new price. However, there have been transactions in Bessemer and basic at the \$33 price for basic and \$36.30 for Bessemer, and several producers of foundry iron announces they are ready to sell regular customers at the \$33 price. There is no change to note this week on billets and sheet bars, but these are likely to be lower in the near future. In regard to coke, three or four of

the leading producers have already accepted the \$6 price named by the Government and are now quoting \$6 per net ton at oven for prompt and contract furnace and foundry coke. Two leading coke producers, whose coke has a very high reputation in the trade, and who have contracts with several leading consumers of blast furnace coke, the price to be fixed from day to day, are billing their coke from Monday, Sept. 24, at \$6 per net ton at oven. These same coke producers now have large contracts on their books for first half of next year and over all of next year, at \$8.50 and \$9 per net ton at oven, and these contracts will not be disturbed in any way by the price fixed by the Government, as they were made at a flat price.

Pig Iron.—The \$33 price on basic and No. 2 foundry iron is already in effect so far as Valley producers are concerned. Two of the largest makers of basic iron in the Valley are now quoting \$33 at furnace, and say they will not charge one cent less or one cent more than that price. A tentative differential of \$3.30 per ton in favor of Bessemer iron was made over basic, which puts the price of Bessemer iron at \$36.30, Valley furnace. By carefully going over records it was found that for nine years ending 1916 the average differential in favor of Bessemer iron over basic was 10 per cent. It was also found that the average price of basic iron this year up to this time was \$40.40 at Valley furnace, while the average price of Bessemer iron was \$44.35 for the same period, or about 10 per cent. It was therefore decided to make a tentative differential of 10 per cent in favor of Bessemer iron over basic, this being subject to revision later when a pig iron committee to be appointed has worked out the differentials, and this puts the tentative price of Bessemer iron at \$36.30 Valley furnace. A local interest has sold 5000 tons of Bessemer iron to a Youngstown consumer at \$36.30 Valley furnace for October delivery. It is expected that other sales will go through this week on the basis of \$33 for basic and \$36.30 for Bessemer. Up to this writing no sales of foundry iron are reported at the Government price of \$33, but several large producers have indicated that they have adopted the price, and will take contracts for No. 2 foundry iron at \$33 when they are offered. Nothing has been done as yet in fixing differentials on malleable Bessemer iron, gray forge and low phosphorus iron, but these will be worked out by the committee that will have in charge the matter of fixing the differentials. We therefore omit this week quoting prices on malleable Bessemer and forge, the nominal price of forge being practically the same as basic but not yet announced. We now quote standard Bessemer iron at \$36.30; basic, \$33; No. 2 foundry, \$33, all at Valley furnace, the freight rate for delivery in the Cleveland or Pittsburgh districts being 95c. per ton.

Billets and Sheet Bars.—Before the Government announced its prices on steel there were some negotiations on for soft open-hearth billets and sheet bars on the basis of about \$65 for billets and \$75 to \$80 for sheet bars. However, when the Government prices came out these negotiations were quickly called off, and now consumers are waiting until the steel trade adjusts itself to the lower price named, believing they will be able to buy billets and sheet bars at much lower prices in the very near future. No sales have been made in the past week, but there would be no trouble to-day in securing soft Bessemer and open-hearth billets at \$60 or less and soft Bessemer or open-hearth sheet bars at \$70 or less, maker's mill, Pittsburgh. We therefore quote soft Bessemer and open-hearth billets at \$60 and soft Bessemer and open-hearth sheet bars at \$70, f.o.b. mill Pittsburgh. However, these are purely nominal prices, with absolutely nothing being done in the way of sales. Prices on forging billets are also nominal at \$90 or less, Pittsburgh. Recently there was a sale made of about 4000 tons of open-hearth billets for shipment to Italy on the basis of \$60, Pittsburgh. The sale is said to have been made by a New York exporting house.

Ferroalloys.—In the face of the puzzling conditions existing in the steel trade since the Government fixed its prices, the inquiry for all grades of ferroalloys has practically ceased and any consumers that may be in need of material are inclined to wait until the market

has settled down and more is known as to what prices are likely to rule on the different grades. In the absence of any sales since last week we make nominal quotations of \$400 per ton on 80 per cent domestic ferromanganese for prompt delivery, but no doubt a lower price would be made in a firm inquiry. For first half of 1918 delivery the price is \$350 per gross ton at furnace. We quote 18 to 22 per cent spiegeleisen at \$80 to \$82.50 per gross ton, delivered.

We quote 9 per cent Bessemer ferrosilicon at \$89, 10 per cent \$90, 11 per cent \$95, 12 per cent \$100, 13 per cent \$105, 14 per cent \$115, 15 per cent \$125, and 16 per cent \$135. We now quote 7 per cent silvery iron at \$79 to \$84, 8 per cent \$80 to \$85, 9 per cent \$81 to \$86, 10 per cent \$82 to \$87, 11 and 12 per cent \$83 to \$88. All f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, and Ashland, Ky., these furnaces having a uniform freight rate of \$2 per gross ton for delivery in the Pittsburgh district.

Steel Rails.—There is no new buying of light sections of standard rails, and none is expected until the market has adjusted itself to the new position created by the announcement of the Government prices on steel. Nominal prices on light rails and regular prices on standard sections are given on page 771.

Structural Material.—The Government price of 3c. fixed on shapes and angles is regarded by the producers here as eminently satisfactory and will allow a good margin of profit. The trade seems also satisfied with the new price, but admits that the chances of getting material from the mills are more hopeless than before from the fact that Government orders and also orders for the Allies will continue to have priority, and any material left after these demands are satisfied will be available for domestic consumers. The McClintic-Marshall Co. has taken 15,000 tons of fabricated steel for Philadelphia subway sections and also for 100 bridges, each 43½ ft. long, for the Belgian Government. It is said that Government orders booked by the Blaw-Knox Co. of Pittsburgh, which were first given as 11,000 tons, are very much larger than this quantity. We do not hear of any sales as yet at the Government price of 3c. so far this week. So we adhere to our former prices. These are given in detail on page 771.

Plates.—The Government price of 3.25c. on sheared plates is regarded by the plate mills as being fairly liberal, and consumers also take the same view of it. It is a fact that the Carnegie Steel Co. and the Jones & Laughlin Steel Co. have been for months furnishing very large quantities of plates to the Government at the price of 2.90c. fixed some months ago. The Carnegie Steel Co. is turning out at present about 60,000 tons of sheared plates per month and fully 90 per cent of this output is going to the Government. The output of plates by the Carnegie company would be larger were it not for the fact that it is short of steel ingots. Plate mills are filled up for several months ahead, and it may be some little time before they accept orders at the new price of 3.25c., at mill. So far, we have not heard of any business placed at this figure and until this is done we must naturally repeat prices in effect before the Government fixed the 3.25c. price. We therefore quote sheared plates, ¼ in. and heavier at 8c. to 9c. for delivery over the remainder of this year, but it is not likely any more new business will be done at these figures. On the other hand, any new orders placed must be at the fixed price of 3.25c., at mill.

Sheets.—The Government did not fix any new prices on sheets, but a readjustment of the whole sheet market to a lower basis is likely within a very short time. Consumers are certain to hold off buying as long as they can and while the sheet mills have free lance in quoting any prices they choose, there is not likely to be very much business done on the basis of prices in effect recently. It is quite likely that in the future, prices on sheets will be regulated entirely by the old recognized law of supply and demand. We repeat former prices on sheets, which are purely nominal as follows: Numbers 3 to 8 blue annealed sheets 8c. to 8.50c.; No. 28 Bessemer black 8.50c. to 9c.; and No. 28 galvanized 9.50c. to 10c., f.o.b. Pittsburgh, in carloads and larger lots. Prices on smaller lots from warehouse carry the usual advances. Nominal prices on sheets are given in detail on page 771.

Tin Plate.—It is expected that early in October the tin plate manufacturers will announce prices on tin

plate for delivery in first half of 1918, and possibly for delivery over all of next year. Before this is done, however, there will be conferences at Washington, as the tinplate manufacturers are working closely with Food Administrator Hoover and will be guided largely by his suggestion as to the price to be fixed. If the tin plate makers can assure themselves of a supply of sheet bars over all of next year, they may agree to name a price on tin plate for delivery for the same period, but this will depend entirely on a satisfactory price and delivery being secured on sheet bars. New inquiry is light and on small lots for prompt shipment, primes are bringing \$12 to \$14 per base box, Pittsburgh. Prices on terne plate are given on page 771.

Hoops and Bands.—Only small lots for prompt shipment are being sold, consumers being covered over the remainder of this year and some through the first quarter of next year, but specifications are not very active. Lower prices on hoops and bands are likely in the near future. We quote steel hoops in small lots for prompt shipment at about 5c., and steel bands at about 5c. to 5.25c., extras on the latter as per the steel bar card.

Wire Rods.—The domestic demand is active and export inquiry is also heavy. Several fairly large lots of soft open-hearth rods have been sold lately for shipment to Canada on the basis of \$85 to \$90 at a mill. Two leading makers say their excess output of wire rods is about sold up and they have very few to sell over the remainder of this year. A sale of 400 tons of high-carbon rods made from special quality acid open hearth steel, is reported at \$115 maker's mill. Prices on rods are given in detail on page 771.

Wire Products.—The new demand for wire and wire nails is dull and specifications are quiet. The export demand for wire nails is active, and recently there have been sales that netted the mills \$4.50 and up to \$4.75 at mill. Thus far, the independent mills show no inclination to lower their prices on wire nails and wire to put them in line with prices of the leading interest. Prices on nails and wire being quoted by the independent mills, the American Steel & Wire Co. price being \$16 per ton lower, are given on page 771.

Iron and Steel Bars.—The Government has fixed the price of steel bars at 3c. at mill, but whether this also applies on iron bars has not been determined. It will take some little time for the bar trade to adjust itself to the new price, and in the meantime sales are not likely to be very active, but on any new business in steel bars the mills are bound to quote the Government price of 3c. at mill. What price the mills that roll iron bars will establish on their product has not been given out, but probably will be within a few days. We do not hear any sales as yet at the new price of 3c. on steel bars, so that mill prices in carloads and larger lots on iron and steel bars as given on page 771 are purely nominal and would not be paid on new orders.

Shafting.—This is one item of finished steel that has not been affected as yet by the Government prices on steel, and whether it will be later remains to be seen. The consumers will likely hold off placing new orders until the market has settled down to the new basis of prices given out by the Government. It is not unlikely that prices on shafting may show some decline. For the domestic trade discounts on shafting remain at 10 and 5 per cent off list, sales to the Government being made at much lower figures.

Railroad Spikes and Track Bolts.—Very few new orders are being received for spikes or track bolts, and the market will likely remain quiet until readjustment in prices has taken place. It is not believed that prices of railroad spikes will be maintained on the present basis, and this is also true of track bolts. Nominal prices on railroad spikes and track bolts are given in detail on page 771.

Nuts and Bolts.—The domestic demand for nuts and bolts is dull, but the Government is a heavy buyer, having lately distributed among the makers what is said to be the largest single order for bolts ever given out. Consumers expect lower prices on nuts and bolts

in the near future. Discounts in effect are given on page 771.

Cold Rolled Strip Steel.—Consumers are holding off buying, and the new demand is dull and specifications against contracts are not very active. The Government is a fairly heavy buyer of cold rolled strip steel at prices somewhat lower than are quoted to domestic users.

On contracts, mills are quoting 9c. at mill, but on small current orders prices range from 10c. up to 12c. at mill. Terms at 30 days, less 2 per cent off for cash in 10 days when sold in quantities of 300 lb. or more.

Rivets.—New buying is dull and consumers are likely to hold off still more in placing orders, believing that prices will be lower. Prices in effect on rivets are \$5.25 for structural and \$5.35 for cone-head boiler per 100 lbs. f.o.b. Pittsburgh for delivery over remainder of this year.

Wrought Pipe.—What effect the Government prices on steel will have on the iron and steel pipe market remains to be seen, but it is very probable that a readjustment in prices on all kinds of iron and steel pipe to a lower basis will follow. The new demand is not active, and jobbers are working off their stocks as fast as possible in the belief that the market will be lower in the near future. The Government is still a heavy buyer of steel pipe, its orders being distributed among the different mills based on their capacity, and also on whether they are self-contained. Discounts on iron and steel pipe are quoted by the independent mills, but which are now nominal to some extent. Prices of the National Tube Co., being considerably lower, are given on page 771.

Boiler Tubes.—The situation in this material is unchanged. Mills rolling iron and steel tubes are sold up for a year or more, and heavy premiums are being paid for tubes for fairly prompt shipment. There are no regular prices on either iron or steel tubes, these continuing to depend entirely on the quantity wanted, sizes and delivery. Nominal discounts, but which are very much below actual prices ruling, are given on page 771.

Coke.—The fixing of the price by the Government on furnace coke of \$6 per ton is generally regarded by the coke trade here as a fair price, and one that will leave to the coke producers a very good profit. In fact, the price of \$6 was \$1 to \$2 per ton higher than was generally expected by the coke trade would be fixed. The fact that run-of-mine coal is \$2 per ton at oven, and coke \$6, leaves too great a differential, and as the Government fixed both prices, it is regarded as very probable that within a very short time the fuel administrator will announce a new and higher price on coal, possibly \$3 per net ton at mine. For the past several weeks, coke producers have been getting under cover and contracting for as much of their output of coke as they could. Some contracts are for six months' delivery from Jan. 1 and others for a whole year from that date. These contracts were made in various ways, some on the basis of 5 to 1, and others 4½ to 1, basic iron being used as the basis, or, in other words five tons of coke for the price of a ton of basic iron, and 4½ tons for the price of a ton of basic iron after the latter reaches a certain figure. There were also large contracts for furnace coke made at \$8 and \$8.50 flat for the entire year, and in several cases, \$9 was paid for high grade furnace coke. One contract was for 10,000 tons per month at that price for six months from Jan. 1, and another was for 20,000 tons per month over all of 1918. A leading Youngstown, Ohio, coke consumer is said to have closed for about 25,000 tons per month for the first six months of 1918 at \$6 per net ton at oven. Why this contract was made at a price so much lower than other consumers of coke paid has not been explained, but it is insisted that the contract was made, and at the price of \$6 per net ton at oven. The concern in question is building some by-product coke ovens that will be ready about the middle of 1918, and when these are finished, it will be self-contained in coke and able to make all the coke it needs for its blast furnaces. The Government price of \$6 per ton on coke does not affect contracts in any way, and the concerns that have covered on their coke at \$8 and \$9 per net ton at oven,

will no doubt be perfectly willing to pay this excess in order to get their coke. Producers will see to it that contracts at these prices are filled promptly as far as possible, and any concerns to which they sell coke at \$6 per ton, will likely get what is left after the high priced contracts have been filled. We now quote the Government price of \$6 per net ton at oven on all grades of blast furnace and foundry coke for spot shipment and on contract. Several leading coke companies have signified their intention of selling furnace and foundry coke at the \$6 price when they can do so.

Old Material.—The Government has not fixed any prices on scrap nor was it expected that it would. Scrap is a material that is peculiar to itself, in the fact that it is a product sold through dealers, and it is recognized that prices ruling are the prices that must be determined entirely by the law of supply and demand. It is believed there will be a shortage in the supply of pig iron, and steel melters will have to use more scrap in order to keep up their output. If the demand for scrap is active, higher prices are bound to rule. It was not regarded as feasible for the Government to fix prices on scrap, as there are too many different kinds and too wide differentials existing between the different grades. In fact, some grades of scrap sell for about one-third what other grades bring, and a flat price on all kinds of scrap was utterly impossible. In the meantime, nothing is being done in the scrap trade in the way of sales, and it will probably be several weeks, or longer, before there is any active movement. Prices are purely nominal in the absence of sales, but are reported as being firm. Scrap used for steel melting purposes is scarce, and a large purchase would probably very quickly have the effect of putting up the market. Under present conditions, we can only repeat former nominal prices as follows:

Heavy steel melting scrap, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh, delivered	\$33.00 to \$34.00
No. 1 foundry cast	30.00 to 31.00
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.	38.00 to 40.00
Hydraulic compressed sheet scrap	25.00 to 26.00
Bundled sheet scrap, sides and ends, f.o.b. consumers' mill, Pittsburgh district	23.00 to 24.00
Bundled sheet stamping scrap	21.00 to 22.00
No. 1 railroad malleable stock	26.00 to 27.00
Railroad grate bars	18.00 to 19.00
Low phosphorus melting stock	42.00 to 45.00
Iron car axles	45.00 to 46.00
Steel car axles	45.00 to 46.00
Locomotive axles, steel	52.00 to 53.00
No. 1 busheling scrap	24.00 to 25.00
Machine-shop turnings	21.00 to 22.00
Cast iron wheels	31.00 to 32.00
Rolled steel wheels	36.00 to 37.00
*Sheet bar crop ends	41.00 to 42.00
Cast iron borings	22.00 to 23.00
No. 1 railroad wrought scrap	32.00 to 33.00
Heavy steel axle turnings	23.00 to 24.00
Heavy breakable cast scrap	24.00 to 25.00

*Shipping point.

Chicago

CHICAGO, Sept. 24.

On the eve of a great readjustment in prices, unquestionably far-reaching and of the greatest importance, the trade is at sea. The first information that came over the wires was meagre and unsatisfying inasmuch as it was not made clear whether the new prices for pig iron, plates, shapes and bars were to be extended to the general public, and in the absence of this important detail mill executives and sales managers said they had no changes to announce in their prices. As for selling, they could not if they would, for the public was not buying, and will not until the atmosphere has cleared. Innumerable questions have been asked and many suppositions advanced, mostly having to do with the fulfilment of contracts and the questions of freight rates, the new order apparently giving the Western mills all the best of it in this territory. The representatives of the Southern furnaces are wondering how they are going to fare if an arbitrary price for iron at furnace is fixed. It costs them approximately \$4 to get iron to this market,

whereas Northern furnaces can deliver in Chicago for 50c. per ton. Buyers of old material have withdrawn from the market. Scrap has declined quite generally and a further tumble is predicted.

Pig Iron.—The market as it existed up to to-day can be summed up quickly by saying that there has been no business worthy of the name, with none expected until the Government price is digested. Now that the price has been announced, there will be no business until both sellers and buyers find themselves. Up to the moment of writing, essential details of the Government's move are lacking, and the trade is asking questions right and left. It will be some days, in the general belief, before conditions will have settled. The price announced—\$33—is presumably for No. 2 foundry, and, what about low phosphorus, charcoal, the silveries and other choice grades? is asked. The great majority of consumers—knowing that something was coming—have been waiting. Sales have been insignificant, and practically confined to resale iron. The representatives of furnaces insist that their quotations were not lowered. In one quarter, it is admitted that resale Southern No. 2 has been let go at \$48, furnace, as compared with the \$50 as quoted by the producer. Another report is that resale Southern has sold as low as \$41, Birmingham. A week ago, Northern iron was offered by a producer at \$54, furnace, a consumer refusing to take it at that level. Under prevailing conditions, only conjecture can be written. The quotations given below are nominal and apply to what has been quoted in the past week as published in last week's IRON AGE. What will prevail from to-day on remains to be seen. The quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable Bessemer and basic irons, which are f.o.b. furnace, and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, Nos. 1 to 4	\$58.00
Lake Superior charcoal, Nos. 5 and 6	
Scotch and No. 1 soft or special	60.50
Northern coke foundry, No. 1	54.50
Northern coke foundry No. 2	54.00
Northern coke foundry No. 3	53.50
Northern high-phosphorus foundry	54.00
Southern coke No. 1 f'dry and 1 soft	55.00
Southern coke No. 2 f'dry and 2 soft	\$52.00 to 54.00
Malleable Bessemer	54.00
Basic	54.00
Low-phosphorus	\$85.00 to 90.00
Silvery, 8 per cent	77.50 to 82.50

Ferroalloys.—At noon to-day 80 per cent ferromanganese was quoted at \$375 for the last half and \$350 for the first half.

Plates.—The leading independent mill has continued to quote 8c., Pittsburgh, or 8.189c., Chicago, and had made no change late this afternoon following receipt of the Government's figure of 3.25c., Pittsburgh or Chicago. One Government inquiry of the week called for 15,000 tons, immediate delivery, the inquiry coming from the War Industries Board. An Ohio mill has been out of the market on plates 72 in. and wider, except where it could buy slabs and billets from other mills wherewith to make them. For narrow plates it has quoted 8.189c., Chicago. The market has been dull, consumers waiting for governmental action.

For Chicago delivery out of stock jobbers quote 10c.

Structural Material.—A few small building propositions have been let as follows:

Avery Co., 12 panel roof truss, Peoria, Ill., 189 tons, to Christopher & Simpson Co.

United States Government, storehouse at St. Julien's Creek, Va., 105 tons, to Kellogg Structural Steel Co., Buffalo.

Ohio & Colorado Smelting & Refining Co., structural steel for wedge flue system, Salida, Col., 139 tons, to unknown.

Linde Air Products Co., plant at Denver, Col., 106 tons, to Union Foundry Co., Chicago.

Ray & Gila Valley Railroad, Mineral Creek bridge near Ray, Ariz., 156 tons, to American Bridge Co.

A theater at State and Lake Streets, this city, for which the plans are out, calls for 1000 tons of standard and 1500 tons of Bethlehem shapes, and it may be that this project presages some noteworthy activity in building. Sellers have been a unit in quoting 4.689c., Chicago, and up to late this afternoon had not officially changed their quotations, although conversant with the Government price of 3c., Pittsburgh or Chicago. They

were waiting to be informed officially of the new price, also were asking if it were to be extended to the general public.

For material out of stock jobbers quote 5c.

Sheets.—The market became easier in the week, No. 28 galvanized being quoted at 9.689c. to 10.189c., Chicago, and No. 28 black and No. 10 blue annealed at 8.189c. to 9.189c., Chicago. The principal local producer, however, has quoted 8.689c. to 8.939c., Chicago, for both grades. Business has admittedly been dull.

We quote for Chicago delivery out of stock, regardless of quantity, as follows: No. 10 blue annealed, 10c.; No. 28 black, 10c., and No. 28 galvanized, 11.50c.

Bars.—Though iron bars and rail carbon steel bars are not specified in the meager news at hand to-day, the makers are wondering how their products will be affected. Meanwhile they quote 4.50c., Chicago, for iron bars, and 4.25c. to 4.50c., Chicago, for rail carbon. A good aggregate of small inquiries has been received in the week, one Eastern mill turning down orders for mild steel bars, the quotation for which has been 4.50c., Pittsburgh, or 4.689c., Chicago. The Government price is 2.90c., Pittsburgh or Chicago.

We quote prices for Chicago delivery as follows: Soft steel bars, 4.50c.; bar iron, 4.50c. to 5c.; reinforcing bars, 4.50c. base, with 5c. extra for twisting in sizes $\frac{1}{2}$ in. and over and usual card extras for smaller sizes; shafting list plus 5 per cent to plus 10 per cent.

Old Material.—The impending announcement of prices as fixed by the Government caused the market to become very soft. Dealers assert it to be in bad shape, some predicting that the week will bring a wholesale and radical decline in prices. Consumers appear to be of the same opinion for they withdrew from the market on Saturday. Prior to the announcement of the Government's price on pig iron and various steel products, a decline was shown in almost every item on the list. The railroad offerings were light, moderate-sized lists being issued by the C., B. & Q., the St. Paul, the C. & Gt. W. and the Rock Island Lines. We quote for delivery at buyers' works, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Old iron rails	\$40.00 to \$42.00
Relaying rails	50.00 to 55.00
Old carwheels	30.00 to 31.00
Old steel rails, rerolling	38.00 to 39.00
Old steel rails, less than 3 ft.	34.00 to 35.00
Heavy melting steel scrap	30.00 to 31.00
Frogs, switches and guards, cut apart	30.00 to 31.00
Shoveling steel	29.00 to 30.00
Steel axle turnings	20.00 to 21.00

Per Net Ton	
Iron angles and splice bars	\$38.00 to \$39.00
Iron arch bars and transoms	40.00 to 41.00
Steel angle bars	27.00 to 28.00
Iron car axles	42.00 to 43.00
Steel car axles	41.00 to 42.00
No. 1 railroad wrought	34.00 to 35.00
No. 2 railroad wrought	30.00 to 31.00
Cut forge	30.00 to 31.00
Pipes and flues	20.00 to 21.00
No. 1 busheling	23.00 to 24.00
No. 2 busheling	17.00 to 17.50
Steel knuckles and couplers	35.00 to 36.00
Steel springs	40.00 to 41.00
No. 1 boilers, cut to sheets and rings	18.00 to 19.00
Boiler punchings	32.00 to 33.00
Locomotive tires, smooth	36.50 to 37.50
Machine-shop turnings	16.00 to 17.00
Cast borings	15.00 to 17.00
No. 1 cast scrap	23.00 to 24.00
Stove plate and light cast scrap	18.00 to 18.50
Grate bars	16.50 to 17.50
Brake shoes	17.00 to 18.00
Railroad malleable	29.00 to 30.00
Agricultural malleable	25.00 to 26.00
Country mixed scrap	17.00 to 18.00

Wire Products.—Makers are wondering if they are on the eve of a change; meanwhile the leading interest continues to quote on the basis of 3.20c. for nails, with the independents at 4c. On the latter basis we quote per 100 lb. to jobbers:

Plain fence wire, Nos. 6 to 9, base, \$4.189; wire nails, \$4.189; painted barb wire, \$4.339; galvanized barb wire, \$5.039; polished staples, \$4.339; galvanized staples, \$5.039; all Chicago, carload lots.

Rails and Track Supplies.—Under the circumstances the market is nominal. We quote:

Standard railroad spikes, 4.50c. to 5.25c., base; small spikes, 4.75c. to 5.50c., base; track bolts with square nuts,

5.50c. to 6c., all in carloads, Chicago; tie plates, \$70 to \$90 f.o.b. mill, net ton; standard section Bessemer rails, Chicago, \$38, base (nominal); open hearth, \$40 (nominal); light rails, 25 to 45 lb., \$70; 16 to 20 lb., \$71; 12 lb., \$72; 8 lb., \$73; angle bars, 3.25c., base.

Bolts and Nuts.—The makers have yet to determine what effect the Government's prices will have upon their product. For prices and freight rates, as yet unchanged, see finished iron and steel, f.o.b. Pittsburgh, page 771.

Store prices are as follows: Structural rivets, 5.50c.; boiler rivets, 5.60c.; machine bolts up to $\frac{3}{4}$ x 4 in., 40-10; larger sizes, 35-5; carriage bolts up to $\frac{3}{4}$ x 6 in., 40-2 $\frac{1}{2}$; larger sizes, 30-5; hot pressed nuts, square, \$2.50, and hexagon \$2.50 off per 100 lb.; lag screws, 50 per cent off.

Cast-Iron Pipe.—Lower prices for pig iron will be welcomed by the makers of cast-iron pipe inasmuch as their high level has brought the market to a standstill. St. Louis has taken bids on 1000 tons, but has not placed the business. No change has been made in the prices which follow:

Quotations per net ton, Chicago, are as follows: Water pipe, 4 in., \$68.50; 6 in. and larger, \$65.50, with \$1 extra for class A water pipe and gas pipe.

Cleveland

CLEVELAND, Sept. 25.

The pig iron and steel market is completely unsettled as a result of the announcement of the new prices named by the Government. Sellers will not quote prices until the situation is cleared up and nobody wants to buy. Producers and selling agencies have received no information regarding the price adjustments further than the brief announcement of the new prices, and it is expected that it will be several days before sellers will get their bearings and know what prices to quote, and until buyers come into the market. Nominal quotations on various steel products will not be changed until it is definitely known what the new prices will be. It is the general opinion of the trade that high priced pig iron contracts will stand, but that unless there is a readjustment of steel prices, there will be a wholesale cancellation of prices on steel products.

Iron Ore.—Under the Government price regulations, ore prices have been fixed for 1918 at this year's basis. There is feeling among some ore men that these prices are not high enough and that the prices should not be established until costs are more definitely determined. When ore prices for this season were named last November, basic pig iron was selling at \$25.50, and foundry iron at \$26 to \$27 in the Valley, but the market was very strong at the time and both grades advanced to \$30 the following week. The present prices were re-established with the idea that the ore-carrying charge next season will be \$1.10 free delivered from the ports at the head of Lake Superior or the same as the bulk of the season chartering for 1917, although the wild rate has been \$1.50 for several months. It is understood, however, that if there should be a reduction in the ore-carrying rate, a corresponding reduction will be made in the price of ore, so that the consumer rather than the shipper would be benefited. It is possible that the carrying charges for ore will be established by the Interstate Commerce Commission. We quote prices delivered at lower Lake ports for 1917-1918 as follows: Old range Bessemer, \$5.95; Mesaba Bessemer, \$5.70; old range non-Bessemer, \$5.20; Mesaba non-Bessemer, \$5.05.

Pig Iron.—While pig-iron producers generally regard the \$33 price fixed by the Government for foundry and basic pig iron as fair, some furnace men feel that the Government should have established prices only for iron for its own uses and that prices to the general consumers should have been allowed to readjust themselves. One Cleveland producer expressed the opinion that the Government should have cancelled all contracts and that all shipments should be made hereafter at the new prices. It is pointed out that producers generally are well filled up on old high-priced orders and that consumers will be unable to buy at the new prices until the old orders are filled. There is

little iron left for this year's delivery. Hence the new prices will have little effect before next year. Many foundries have purchased no iron for the first half of next year and will have a decided advantage over competitors who have purchased iron at \$50 and higher. While many of the foundries that have bought iron for the first half have taken contracts for castings based on high priced pig iron, it is claimed that these foundries will have trouble in getting buyers of castings to specify for castings under the high priced contracts. Pig-iron producers declare that present contracts will not be readjusted at the new price basis. At present, some producers are shipping \$19 and \$20 iron on first half contracts still unfilled, and have \$25 iron on their books for the last half. It will be necessary for them to supply the iron on these contracts and they claim that it will be entirely unfair to readjust high priced contracts on the \$33 basis. It is stated that the average price of last quarter iron shipments will be from \$28 to \$29, or considerably under the new price. Local selling agencies have no information on readjustment of Southern, silvery and low phosphorus iron. The market has been quiet during the past week as well as being limited to a few small lots of foundry iron at \$52, Valley furnace, for shipment to Cleveland consumers. Two inquiries for basic iron from a Southern steel territory are pending aggregating about 10,000 to 15,000 tons for early shipment. We quote nominal prices, delivered Cleveland, as follows, pending readjustment of prices on the new basis:

Bessemer	\$50.95 to \$52.95
Basic	42.30
Northern No. 2 foundry	52.75 to 52.90
Southern No. 2 foundry, nominal	49.00 to 54.00
Ohio silvery, 8 per cent silicon, nominal	81.62
Standard low phos. Valley furnace, nominal	\$0.00

Finished Iron and Steel.—There is a decided lack of uniformity in the views expressed by the steel trade in regard to the Government's adjustment of prices. Some feel that the Government should have fixed prices only for steel for its own requirements and that had this policy been followed, there would have been a gradual readjustment of prices to the trade to a lower level without causing the startling market upheaval that has developed. Others say that the new prices are too low. Some express approval of the Government's action, believing that with lower prices there will be a decided revival in the demand for manufactures in certain lines in which business has been materially curtailed by the high price of steel. It may generally be said that buyers welcome the Government's readjustment of prices, although some who have large stocks or high-priced contracts may suffer. With the various conflicting views, the opinion appears to be almost unanimous that the Government regulation means that there must be an adjustment of old contracts or cancellations. Mills are already getting requests for adjustment of contracts with the threat of cancellation if they are not adjusted. Sellers, on the other hand, maintain that mills are sold up so far ahead that buyers will be unable to get shipments of low-priced steel for a long time and that it will be necessary for them to continue to take the high-priced material. The market is expected to be at a standstill for a few days until the situation clears up, but should mills be asked for quotations to-day, they would name either old prices or decline to quote. Independent mills having contracts for sheet bars and slabs at high prices are likely to suffer materially from the price readjustment. Some of these have contracts for high priced sheet bars and slabs and now face the danger of being required to convert these into finished products at greater reduced prices.

Coke.—While the Government has established \$6 as a price for standard Connellsville furnace coke, no price has been named for foundry coke, but it is expected that there will be the usual differential. A heavy volume of business in furnace coke contracts for the last half has been booked during the past few days at \$8 to \$8.50. In foundry coke sales of standard Connellsville makes are reported at \$12.50 for prompt shipment,

and \$10 for the first half. It is claimed that available supply of coke has been so well cleaned up that consumers will have difficulty in securing coke at the reduced prices.

Bolts, Nuts and Rivets.—Bolt, nut and rivet makers do not look for an early reduction in the price of their products because of the new steel prices. They have high priced contracts for their raw material and say that should they go in the market to-day and attempt to buy steel bars at the new price, they would be unable to do so. At present they are having great difficulty in getting deliveries on high priced steel contracts. We quote rivets at 5.25c., Pittsburgh, for structural, and 5.35c. for boiler rivets. Bolt and nut discounts are as follows, round lot buyers being allowed 5 to 10 per cent discount from these prices:

Common carriage bolts, $\frac{3}{4}$ x 6 in., smaller or shorter, rolled thread, 35 off; cut thread, 30 and 5, larger or longer, 20. Machine bolts, with h. p. nuts, $\frac{3}{4}$ x 4 in., smaller or shorter, rolled thread, 40; cut thread 35; larger and longer, 25. Lag bolts, cone point, 40. Square h. p. nuts, blank, \$1.90 off list; tapped, \$1.70 off list. Hexagon, h. p. nuts, blank, \$1.70 off; tapped, \$1.50 off. C. p. c. and t. hexagon nuts, all sizes, blank, \$1.25 off; tapped, \$1 off. Cold pressed semi-finished hexagon nuts, 50 and 5 off.

Old Material.—The market is at a standstill as a result of the adjustment of pig iron and steel prices by the Government on a lower basis. It is generally conceded that prices of all grades of scrap will be re-established at a sharp decline from recent quotations, but there is considerable difference of opinion as to how much lower the prices will be. At present, no prices are being named, either by producers, dealers or consumers, and it will probably be two or three days or longer before the market adjusts itself to the new conditions. As soon as word reached dealers relating to the fixing of prices, they withdrew price offers for material for which negotiations had not been closed. The market was quiet during the week and prices unchanged, with the exception of heavy melting steel, which was marked down about \$1 a ton. Pending establishment of new prices, we quote former prices, f.o.b. Cleveland, which are now merely nominal:

Per Gross Ton	
Steel rails	\$32.00 to \$33.00
Steel rails, rerolling	44.50 to 45.50
Steel rails, under 3 ft.	35.00 to 36.00
Iron rails	42.50 to 43.50
Steel car axles	50.00 to 51.00
Heavy melting steel	32.00 to 33.00
Carwheels	30.50 to 31.50
Relaying rails, 50 lb. and over ..	50.00 to 60.00
Agricultural malleable	24.50 to 25.00
Railroad malleable	32.00 to 33.00
Light bundled sheet scrap	24.00 to 25.00

Per Net Ton	
Iron car axles	\$46.50 to \$47.00
Cast borings	18.50 to 19.00
Iron and steel turnings and drillings ..	18.00 to 18.50
No. 1 busheling	27.00 to 28.00
No. 1 railroad wrought	41.50 to 42.00
No. 1 cast	27.00 to 28.00
Railroad grate bars	22.00 to 23.00
Stove plate	21.00 to 22.00

The Stalnaker Steel Co., recently organized to engage in the scrap iron business, has elected H. D. Stalnaker president, H. G. Stalnaker, vice-president, and F. S. Easterly, secretary. The company is capitalized at \$250,000 and has its main office at 1126 Permanent Bank Building, Pittsburgh, and a Cleveland office at 1112 Citizens Building. H. D. Stalnaker is in charge of the Pittsburgh office and H. G. Stalnaker has charge of the Cleveland office. The Stalnaker brothers formerly represented The Ohio Iron & Metal Co., Chicago, in the Pittsburgh and Cleveland territories. This company will retire from business as soon as its present orders are cleaned up.

The new plant of the Pottstown Steel Products Co., Pottstown, Pa., will be devoted to the production of stacks, tanks and similar products. It is expected to place the works, now in course of erection, in operation by the first of November.

Cincinnati

CINCINNATI, Sept. 25.—(By Wire.)

Pig Iron—Information as to the Government's move for setting the price of pig iron, steel and coke came so suddenly that local firms are unable to formulate any course to take care of the future. Contracts will be filled and it is interesting to note that some iron is now being shipped on orders far enough back to command a price of \$24 Birmingham. Late advices from a reliable source develop the fact that the agreement made at Washington yesterday is only binding on those who made it and on others who are willing to accept the new prices. Existing contracts are in no way affected, unless by special agreement between buyer and seller. This late information has acted as a quieting influence, but has done nothing to bring out any trading. Melters of foundry iron are turning to scrap for relief, and lately have bought only a limited tonnage of high silicon pig iron to complete their mixtures. There is no movement on the part of foundrymen, who have lately bought iron to carry them over the next four months, to cancel their orders. The production of iron is steadily declining and consumers appear to be satisfied with their old contracts, especially when they are assured of getting the metal on schedule time. Just now furnace operators are paying more attention to obtaining a supply of coke than to selling pig iron for future shipment. Sales last week included 500 tons of Southern iron to an Indiana melter and 600 tons to a Northern Ohio consumer, both for this year's shipment. Based on freight rates of \$2.90 from Birmingham and \$1.26 from Ironton, we quote, f.o.b. Cincinnati, for 1917 shipment, nominal prices, as follows:

Southern coke, No. 1 f'dry and 1 soft.	\$51.40 to \$52.40
Southern coke, No. 2 f'dry and 2 soft.	49.90 to 50.90
Southern coke, No. 3 foundry.....	49.40 to 50.40
Southern coke, No. 4 foundry.....	48.90 to 49.90
Southern gray forge.....	48.90 to 49.90
Ohio silvery, 8 per cent silicon.....	87.26 to 91.26
Southern Ohio coke, No. 1.....	54.76 to 55.76
Southern Ohio coke, No. 2.....	54.26 to 55.26
Southern Ohio coke, No. 3.....	53.76 to 54.76
Southern Ohio malleable Bessemer...	54.26 to 55.26
Basic, Northern.....	54.26 to 55.26
Standard Southern charcoal.....	56.90 to 57.90

Finished Material—The local jobbers are selling nails at \$3.90 per keg base, which is 10c. per 100 lb. below the independent mill prices at Pittsburgh. Little business is reported and it is only occasionally that an order is received for a full carload. Barb wire from stock is unchanged at 5c. a lb. The volume of business reported by the local warehouses for structural material has held up very well, although no large orders are being placed for either structural shapes or reinforcing concrete rods. We quote store prices as follows: Iron and steel bars, 5c.; twisted steel bars 5.05c.; plates ¼-in. and heavier, 10c. and No. 10 blue annealed sheets 10c. The price of No. 28 black sheets remains at 8.65c. and No. 10 galvanized 10.65c.

Old Material—Prices are gradually sagging and a reduction is reported that averages about 50c. a ton on nearly all of the low grades of scrap. The demand from the mills is slack, while offerings are reported this week to be above the average. Borings and turnings are holding their own fairly well, but transactions here are limited to less than car load quantities, thereby causing lower prices to be quoted in this market than in the Pittsburgh district where carload tonnages are under negotiation.

The following are dealers' prices, f.o.b. cars southern Ohio and Cincinnati:

Per Gross Ton	
Bundled sheet scrap.....	\$19.00 to \$19.50
Old iron rails.....	33.50 to 34.00
Relaying rails, 50 lb. and up.....	45.50 to 46.00
Rerolling steel rails.....	35.50 to 36.00
Heavy melting steel scrap.....	29.50 to 30.00
Steel rails for melting.....	29.50 to 30.00
Old carwheels.....	28.50 to 29.00
Per Net Ton	
No. 1 railroad wrought.....	\$30.50 to \$31.00
Cast borings.....	13.50 to 14.00
Steel turnings.....	13.50 to 14.00
Railroad cast.....	21.00 to 21.50
No. 1 machinery cast.....	24.50 to 25.00
Burnt scrap.....	14.50 to 15.00
Iron axles.....	43.50 to 44.00
Locomotive tires (smooth inside)....	37.00 to 37.50
Pipes and flues.....	17.00 to 17.50
Malleable cast.....	22.50 to 23.00
Railroad tank and sheet.....	16.00 to 16.50

Coke—Coke for prompt shipment was becoming scarcer before the Government price was announced and as a consequence spot prices were still around the high level reached about 30 days ago. Connellsville 72-hr. coke was bringing from \$13 to \$15 per net ton for prompt shipment and contract figures were from \$13 to \$14. The shortage of coke in the Wise County and Pocahontas fields is attributed to the large shipments of coal on old contracts. The scarcity of labor has induced many operators to pay particular attention in filling their customers' requirements for coal rather than working up this fuel into coke. The situation in the New River district is only a trifle better as far as shipments of coke are concerned than in the Wise County and Pocahontas fields.

Birmingham

BIRMINGHAM, ALA., Sept. 26.

(By Wire)

Alabama iron operators are preparing to put the Government's new pig iron prices into vogue. It will be several days before a definite schedule in detail is arrived at.

(By Mail)

Pig Iron—Actual trading in furnace pig iron has been greatly reduced. Consumers are waiting on the Government and makers are pushed to deliver on contracts and are not seeking business. A middle western consumer was offered 1918 iron by two Birmingham furnace interests at \$47.50. Another furnace interest turned down an offer of \$46 for 1000 tons for 1918 delivery. A Texas consumer offered \$50 for a car of spot iron. There was a resale of export iron left over at New Orleans at \$46, the equivalent of \$44.60 Birmingham. This iron is to go to Italy. The freight is 5c. per pound, which will make the iron cost delivered in Italy \$175. The amount involved is 1300 tons. It is understood that about 15,000 tons of resale iron at ports passed hands at from \$43 to \$46. The amount still available is said to be rather small. One maker reports no inquiries in two weeks. Another maker has sold less than 2000 tons of iron in three months. It is an absolutely stagnant period and will be until Washington does something. Trussville furnace is ready for the torch, but unable to go into operation on account of lack of raw material, which was not forthcoming by the end of the week. Agents of Birmingham iron companies writing from the different sections in the north, east and middle west report the same lack of business as characterizes this district. The feature of the market is the depletion of Alabama yard stocks, which now aggregate less than 140,000 tons, of which 80,000 tons is foundry due to customers. Warrants have dwindled to about 20,000 tons. Altogether stocks may be considered as nil so far as the market is concerned. The reduction in stocks in August was 51,000 tons. At this rate the yards bid fair to be soon bare. Furnace interests are not yielding any point, because in their well sold-up condition they do not have to, but they are prepared to make considerable concessions as soon as the Government fixes a basis. Spot meanwhile brings \$50 and 1918 iron around \$47 to \$48. We quote for prompt delivery per gross ton f.o.b. Birmingham district furnaces as follows:

No. 1 foundry and soft.....	\$49.50 to \$50.00
No. 2 foundry and soft.....	48.00 to 50.00
No. 3 foundry.....	47.50 to 48.00
No. 4 foundry.....	47.00 to 47.50
Gray forge.....	46.00 to 46.50
Charcoal.....	55.00 to 56.00
Basic.....	48.00 to 50.00

Cast-Iron Pipe—There remains a dearth of municipal orders, but the plants of the Birmingham district are fairly busy on orders from the Government, which have been continuous for some time. There has been no change in prices. We quote per net ton f.o.b. Birmingham district yards, as follows: 4-in., \$63; 6-in. and upwards, \$60, with \$1 added for gas pipe and special lengths.

Coal and Coke—The coal miners have not shown a disposition to work more than four days per week, and many of them have not returned to work. The

output is much less than it ought to be, and in instances furnaces are banked a few days at a time for lack of fuel. Ore miners are also working irregularly. Mines are booked to capacity and find it difficult to make deliveries. Coke is selling at \$12.50 on contracts and at \$15 for spot with furnace coke bringing \$8.

Steel Bars.—Steel bars in car lots, f.o.b. Birmingham, are quoted 4.75c. to 5.00c.; iron bars, 4.20c. to 4.40c.

Old Material.—The old material market is marking time with one or two items on the list a trifle softer this week and bringing \$1 lower prices. We quote per gross ton, f.o.b. Birmingham district dealers' yards, as follows:

Old steel axles.....	\$32.00 to \$33.00
Old steel rails.....	24.00 to 25.00
No. 1 wrought.....	26.00 to 27.00
No. 1 heavy melting steel.....	20.00 to 21.00
No. 1 machinery.....	24.00 to 25.00
Car wheels.....	23.00 to 24.00
Tram car wheels.....	20.00 to 21.00
Stove plate.....	17.50 to 18.00
Shop turnings.....	11.00 to 12.00

Philadelphia

PHILADELPHIA, Sept. 25.

Following the announcement from Washington of Government control prices, business in iron and steel in this market came to a complete standstill. To-day everybody, buyer and seller alike, was "sitting tight" and waiting for more light on the new situation. Sales offices in many instances had received no instructions from furnaces and mills and in the absence of such instructions declined to make commitments. The only sale reported at a control price was a small lot of furnace coke at \$6, ovens. News of the prices fixed by the Government was received with mingled satisfaction and criticism. Pig iron producers seem reconciled to the \$33 price which applies to No. 2 X foundry and basic irons, with prices on other irons subject to corresponding regulation by a committee of the American Iron and Steel Institute. Two sales of basic iron, one of 5000 tons and one of 4500 tons were made last week by eastern Pennsylvania furnaces at a delivered price of \$45. Prices fixed for plates, shapes and steel bars have created more or less dissatisfaction, especially among the smaller producers. Mills which roll plates, shapes or bars from semi-finished material, which they buy in the open market, claim they are seriously discriminated against and may be forced out of business. A local plate mill is reported to have recently contracted for slabs at \$100 per ton and obviously cannot afford to roll plates to sell at 3.25c. That further regulation of prices will come to protect such small producers appears probable. An awkward situation has also been created for jobbers who have contracted ahead, and the impression prevails that some adjustment of this must also be made. The Government is expected to place large orders shortly for finished steel which will fill many mills to capacity for many months and render placing of private business extremely difficult. The coal and coke shortage continues a serious hindrance to capacity production at mills in this district.

Pig Iron.—Two important sales of basic iron marked the period just preceding the announcement of a Government control price. Eastern Pennsylvania furnaces sold 5000 and 4500 tons to two different mills at a delivered price of \$45. Several other deals, involving smaller tonnages, were under way when news was received of the price-control agreement, and then all business was stopped pending receipt of selling instructions from furnaces. At the conferences in Washington, there was not time, it is said, to fix prices on all irons and the \$33 maximum price applies to No. 2 X foundry and basic irons at furnace. This rate of price reduction will be applied to the other irons by a special committee of the American Iron and Steel Institute, due consideration to be given the usual trade differentials and extras. Discussion at Washington at first was based on \$35 pig iron, which was the price asked by the furnaces. The Government held out for \$30 and the \$33 agreement was in the nature of a com-

promise. In the Washington conferences there seemed a unanimity of opinion that the spread between pig iron and ingots ought to approximate \$7.50 per ton and that the spread between pig iron and billets ought to be \$15 and between billets and plates an additional \$15. Pig iron producers do not regard the new price unfavorably, providing they can obtain coke at \$6, ovens. Existing contracts, which average about \$35 to \$36, will not be disturbed, either as to price or deliveries, but regular month-to-month customers will get their usual requirements, it is said, at the control price. For the present, at least, furnaces will not be disposed to consider new business, having sufficient tonnage on their books to keep going until well after the first of next year. In the absence of definite information as to what the prices will be on other than No. 2 X foundry and basic iron, we quote no market prices this week.

Coal and Coke.—Blast furnaces and steel mills in the eastern Pennsylvania district are still seriously hampered by shortage of coal and coke. Coal miners are being paid such high wages that they are satisfied to work three or four days a week, with consequent reduction in mine output. Shortage of cars adds to the demoralization, which threatens to force suspension of work at some furnaces and mills at almost any time. The \$6 control price on blast furnace coke is reported to be satisfactory in every way, and the fact that it was fixed at this fairly generous figure is pointed to in some quarters as an indication that soft coal prices may soon be revised upward. It is held to be the intention of the Government, however, to maintain a sufficient differential between coal and coke to stimulate the capacity production of coke. A small tonnage of spot furnace coke was sold to-day at the control price of \$6. Price fixing on foundry coke is still to be done, and probably will represent a difference upward of about 50c. a ton. Contracts for foundry coke for next year were closed last week at \$10.50 to \$11. Spot foundry coke for the remainder of this year is quoted at \$13, ovens.

Ferroalloys.—Makers of ferromanganese were frankly surprised by the fact that no control price was fixed by the Government for their product and they believe that such regulation may still come. Meanwhile, the market has weakened perceptibly and a lot of 100 tons was sold a few days ago at \$340, spot, and several spot lots were booked at \$350. Still lower prices are probable. Under present conditions, it is not expected that there will be any contracting ahead. Spiegeleisen has also weakened to \$78 to \$80, furnace, and undoubtedly better could be done. A Western inquiry for 4000 tons is reported to have been placed here at \$75 for delivery during the remainder of this year.

Billets.—Though no control price on billets, slabs and blooms has been settled upon, it is generally believed that there will be a reduction of prices to about \$50 for open-hearth and Bessemer re-rolling billets and about \$55 for forging billets, with the usual trade differentials and extras on allied products. Offerings of open-hearth re-rolling billets were made last week at \$70, Pittsburgh, and forging billets at \$75. Pending further developments in the price situation, trading will undoubtedly remain at a standstill, which will not be disturbing to the leading producers, who are sold up so far ahead that they have had little to offer for some weeks past.

Sheets.—Prices of sheets are weaker, but there is no business. It is generally believed that a control price will be announced by the Government. The market is weak at the following Pittsburgh base prices: No. 10 blue annealed, 8c. to 8.50c.; No. 28 black, 8c. to 8.50c.; No. 28 galvanized, 10c. to 10.50c.

Structural Material.—The mills are well sold ahead and are not disposed to take on much new business at this time at the Government price of 3c., Pittsburgh. Some criticism of this price is heard, especially among the smaller producers, and the naming of Chicago as a basing point is regarded here as a discrimination against the Eastern Pennsylvania district in selling in the Chicago territory.

It is intimated that quotations for structural material may henceforth be made on the basis of the

cost for the fabricated material. There has been no attempt and probably will be none to regulate the fabricating costs, and fabricators may charge any price they like. Steel contracts for the new Philadelphia subways and for the buildings to be erected by the Tacony Ordnance Corporation are still pending. The Stone & Webster Engineering Corporation, Boston, has awarded contracts for 32 buildings, totalling about 13,600 tons, to a number of fabricators as follows: United States Steel Products Co., eight; Hedden Iron Construction Co., four; Belmont Iron Works, four; Decatur Bridge Co., three; Lewis F. Shoemaker & Co., three; Hay Foundry & Machine Co., six; McClintic-Marshall Co., one; Levering & Garrigues, one; the Eastern Bridge & Construction Co., one; the Ferguson Steel & Iron Co., one.

Plates.—There was no acceptance of business in plates to-day except some small orders which were mailed before the announcement of the Government price, and the buyers of these lots seemed willing to let the order stand even when given at a price several cents in excess of the Government price. Small plate mills in this district are placed in a decidedly awkward position by the control price, especially those which roll plates from billets or slabs which they buy in the open market. One concern is reported to have contracted for slabs recently at \$100 a ton and obviously cannot afford to sell its plates at 3.25c. A maker of plates from slabs said that with billets and slabs at about \$50, Pittsburgh, which has been mentioned as a probable figure under the control plan, it would not more than break even. Other mills which have their own furnaces, but which are now loaded up with low-priced Government business, also complain that their production costs exceed or equal the price which the Government and the larger steel producers agreed to. Last week several inquiries for export, including one of 15,000 tons, were turned down. It now becomes a matter of interest whether the mills will be willing to book export business, especially for Japan, which has been a persistent buyer, at the price the Government has named. It is interesting to note that some of the smaller shops which buy plates are getting in line to take Government work because they cannot get material for private work, and in some cases have been threatened with a shut-down. The Emergency Fleet Corporation will keep a large number of these shops going on supplying boilers for the new merchant fleet now building. The new price for plates is 3.25c. for the tank quality, with the usual trade differentials and extras on other grades to be adjusted by a committee of the American Iron and Steel Institute.

Iron and Steel Bars.—Steel bar mills in this district have sufficient business on their books to keep going until the first of the year, when the new control price may be readjusted. In view of such readjustment, buyers will not commit themselves beyond the first of the year and sellers will probably not accept any next-year business. Jobbers and others who hold contracts for the remainder of the year were telephoning to sales offices to-day to learn whether contracts would be revised on the basis of the new price, but in the absence of definite instructions from mills no information could be given. We now quote steel bars on the basis of 2.90c., base Pittsburgh. The only large business closed just prior to the announcement of the new price was several orders for Japan aggregating nearly 5000 tons, which were booked at 4.50c., Pittsburgh, and it was asserted that these orders will stand.

Old Material.—Handlers of scrap material were thrown into a near-panic by the announcement of control prices on steel and pig iron. They immediately telegraphed their agents to withdraw all offers both for buying and selling, and this condition of desuetude will probably remain for several days, or until some light can be obtained which will reflect the probably future course of the market. The opinion of most dealers is that when trading is resumed it will be at a level from \$2 to \$5 lower than those quoted below, which we repeat from last week's issue. Some take an optimistic view of the situation, however, and hold that at the new price pig iron may be scarce, and that this will bring about an increased demand for scrap mate-

rial, thus steadying the market. Such consideration, however, is more for the future than the present. A sale of heavy melting steel was made a couple of days ago at \$34, but after the price announcement probably not over \$25 could have been obtained had anyone been willing to buy. We quote nominal prices per gross ton delivered in the Pennsylvania district as follows, with the prospect that more definite prices will be established by negotiation between buyer and seller:

No. 1 heavy melting steel.....	\$30.00 to \$32.00
Steel rails, rerolling	41.00 to 43.00
Low phosphorus heavy melting.....	40.00 to 43.00
Old iron rails.....	43.00 to 45.00
Old carwheels	32.00 to 34.00
No. 1 railroad wrought.....	43.00 to 45.00
No. 1 forge fire.....	23.00 to 24.00
Bundled sheets	23.00 to 24.00
No. 2 busheling.....	16.00 to 17.00
Machine shop turnings (for blast furnace use)	17.00 to 19.00
Machine shop turnings (for rolling mill use)	20.00 to 21.00
Cast borings (for blast furnace use).....	17.00 to 19.00
Cast borings (clean).....	22.00 to 23.00
No. 1 cast	30.00 to 32.00
Grate bars	21.00 to 22.00
Stove plate	21.00 to 22.00
Railroad malleable	32.50 to 35.00
Wrought iron and soft steel pipes and tubes (new specifications).....	30.00 to 32.00

Buffalo

BUFFALO, Sept. 24.

Pig Iron.—Producers are not yet undertaking to equalize price schedules to the basis of the Government regulating price of \$33 per ton announced late to-day, and such furnacemen as have expressed themselves on the subject since the announcement of the price fixed by the Government intimate that it is not likely that they will be able to do so until they can secure coke at a figure under the present high level, which is 60 per cent above the regulation price of \$6 per ton fixed by the Government. Until this situation is changed, and the question of obtaining material straightened out, it will be difficult to make quotations; although it is expected demand will be intense. There has been very light buying during the past week, awaiting the Government's impending action. A few hundred tons of No. 2 X foundry have been sold at \$53, and small tonnages of other foundry grades and malleable have been taken at prices ranging between \$53 and \$55, according to grade. Pending adjustments which may be made later to conform to Government regulation the price schedule remains in statu quo, continued from last week's report, as follows, f.o.b. furnace, Buffalo:

High silicon irons.....	\$55.00 to \$56.00
No. 1 foundry.....	54.00 to 55.00
No. 2 X foundry.....	53.00 to 55.00
No. 2 plain.....	52.00 to 54.00
No. 2 foundry.....	51.00 to 53.00
Gray forge	51.00 to 53.00
Malleable	53.00 to 55.00
Basic	54.00 to 55.00
Lake Superior charcoal, f.o.b. Buffalo	55.00 to 60.00

Finished Iron and Steel.—Both new demand and specification on existing contracts have fallen off during the week and many sales agencies report it has been the dulllest period they have experienced during the summer and fall season. The only special feature of interest that developed during the week was an inquiry for export purposes covering about 1000 tons of boilers which, however, has not yet been placed. It is understood that most of the independent mills are following the lead of the principal interest in the raising of wages of employes ten per cent. This action, it is expected will stimulate production, which has been falling behind of late, due to shortage of labor.

Old Material.—Owing to rumors that the price for heavy melting steel had been fixed by the Government at \$25 per ton, the market is unsettled, and more or less "at sea"; as dealers hardly believe this price would be established if the price of pig iron had been fixed at \$33 by Government regulation, as was announced late to-day. In quotations made during the week dealers have strictly adhered to last week's schedules, demand having been active, and for some commodities in excess of supply. In a few instances, sales have been made at advances over last week's prices. Dealers, as a rule are inclined to hold their stocks and

not let go of scrap materials very easily, unless the Government forces them to sell. It is difficult, dealers state, to obtain sufficient help to sort and load material at yards, and, this coupled with scarcity of cars, is retarding shipments. Price schedules remain nominally unchanged from a week ago, per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel.....	\$31.50 to \$32.00
Low phosphorus.....	41.00 to 42.00
No. 1 railroad wrought.....	43.00 to 44.00
No. 1 railroad and machinery cast.....	30.00 to 31.00
Iron axles.....	45.00 to 47.00
Steel axles.....	45.00 to 47.00
Carwheels.....	35.00 to 36.00
Railroad malleable.....	32.00 to 33.00
Machine shop turnings.....	18.00 to 19.00
Heavy axle turnings.....	26.00 to 27.00
Clean cast borings.....	20.00 to 21.00
Iron rails.....	43.00 to 44.00
Locomotive grate bars.....	20.00 to 21.00
Stove plate.....	21.00 to 22.00
Wrought pipe.....	28.00 to 29.00
No. 1 busheling scrap.....	28.00 to 29.00
No. 2 busheling scrap.....	18.00 to 19.00
Bundled sheet stamping scrap.....	20.00 to 21.00

St. Louis

St. LOUIS, Sept. 24.

Pig Iron.—The news of the governmental action with relation to iron and steel prices did not reach St. Louis in time to develop any discussion of the effect on the local market and, of course, there was no action in the market upon which the price-making decisions could be said to bear. During the week the tendency in all respects was that which has prevailed for the past several weeks—to await the action reported today, and in consequence there has been a minimum of transactions. Sales as made were in small lots and for immediate needs or for special uses requiring particular analyses. Some offerings were reported of foundry grades a little below the market, but these were usually found to be resale iron on which the price quoted was for immediate acceptance and not available more than 24 hours, if that long.

Old Material.—In the scrap market, there was even less of life than during the preceding week, as there was practically no call for scrap from the consumers, and the dealers found very little occasion to trade among themselves, even for needed material. In addition there were no lists out from railroads or industries and therefore no local incentive to increase interest in the market. Rolling mills are willing to buy small lots at bargain prices, but will make no long commitments. No steel demand at all was apparent and foundry grades show weakness. These conditions applied to practically everything in the list, with locomotive tires probably the softest of all the items quoted. We quote dealers' prices, f.o.b. consumers' works, St. Louis industrial district, as follows:

Per Gross Ton	
Old iron rails.....	\$40.25 to \$40.75
Old steel rails, rerolling.....	38.00 to 38.50
Old steel rails, less than 3 ft.....	37.00 to 38.00
Relaying rails, standard section, subject to inspection.....	50.00 to 55.00
Old car wheels.....	31.50 to 32.00
No. 1 railroad heavy melting steel scrap.....	30.50 to 31.00
Heavy shoveling steel.....	29.00 to 29.50
Ordinary shoveling steel.....	26.00 to 26.50
Frogs, switches and guards cut apart.....	30.50 to 31.00
Ordinary bundled sheet scrap.....	20.50 to 21.00
Heavy axle and tire turnings.....	20.00 to 21.00

Per Net Ton	
Iron angle bars.....	\$39.00 to \$39.50
Steel angle bars.....	28.00 to 29.00
Iron car axles.....	44.50 to 45.50
Steel car axles.....	42.50 to 43.00
Wrought arch bars and transoms.....	41.50 to 42.00
No. 1 railroad wrought.....	35.50 to 36.00
No. 2 railroad wrought.....	33.50 to 34.00
Railroad springs.....	31.50 to 32.00
Steel couplers and knuckles.....	36.50 to 37.00
Locomotive tires, 42 in. and over, smooth inside.....	39.00 to 39.50
No. 1 dealers' forge.....	26.50 to 27.00
Cast iron borings.....	16.50 to 17.00
No. 1 busheling.....	25.00 to 25.50
No. 1 boilers, cut to sheets and rings.....	21.50 to 22.00
No. 1 railroad cast scrap.....	21.00 to 21.50
Stove plate and light cast scrap.....	16.00 to 16.50
Railroad malleable.....	29.00 to 30.00
Agricultural malleable.....	24.00 to 24.50
Pipes and flues.....	22.50 to 23.00
Heavy railroad sheet and tank scrap.....	18.00 to 18.50
Railroad grate bars.....	18.50 to 19.00
Machine shop turnings.....	17.50 to 18.00
Country mixed scrap.....	16.50 to 17.00

Finished Iron and Steel.—In finished products the problem still continues to be one of delivery of material already contracted for and the urgency of the

calls for shipments continued with very little relief, rather a tendency toward still further deferment of delivery. Movement shows further decrease in all classes of material affected by Governmental demand. The warehouses are finding it increasingly difficult to meet the calls of customers who are willing to pay the prices asked and report that the shipments of the wanted classes of material under their contracts with the mills are becoming slower with each succeeding week. Stocks on hand are well down to the bottom of supplies on hand. For stock out of warehouse we quote as follows: Soft steel bars, 4.55c.; iron bars, 4.50c.; structural material, 5.05c.; tank plates, 10.05c.; No. 10 blue annealed sheets, 10.05c.; No. 28 black sheets, cold rolled, one pass, 10.35c.; No. 28 galvanized sheets, black sheet gage, 11.75c.

Coke.—In coke the situation was entirely based upon spot demand and prices were held at the last prevailing high prices with very little selling, as melters in this section are not in particularly sharp need of coke.

New York

NEW YORK, Sept. 26.

Pig Iron.—There was very little activity in the pig iron market prior to the announcement of the \$33 price made by agreement of Government officials and representatives of the iron and steel business. A New Jersey foundry was in the market for 1000 tons for early delivery, but no other tonnages of importance were pending. After the price-fixing announcement was made, inquiries ceased and no quotations were obtainable from sellers, who notified their customers that pending an adjustment of differentials on pig iron, no quotations would be made. The general feeling is that differentials and other details will be adjusted and that new prices will be established by practically unanimous agreement, although there is no law to compel the selling of pig iron at any price or to allow Government officials to fix a definite price. In the absence of transactions, we repeat last week's prices for tidewater delivery in the near future as follows. These are, of course, entirely nominal:

No. 1 foundry.....	\$45.75 to \$50.75
No. 2 X.....	44.75 to 49.75
No. 2 plain.....	43.75 to 45.75
Southern No. 1 foundry.....	50.75 to 51.75
Southern No. 2 foundry and soft.....	50.25 to 51.25

Ferroalloys.—The market for ferromanganese continues extremely quiet and is unchanged at \$375 for delivery for any position this year with \$350 asked for delivery next year. These quotations refer entirely to the domestic product, it being practically impossible to buy the British alloy for any delivery. Transactions in the domestic market are confined to a few small lots, mostly for delivery this year, and inquiry for any position is not large. It is reported that one large consumer deferred his inquiries for his next year's needs until the Government prices for steel were made public. Indications are not encouraging as to the receipts of ferromanganese from Great Britain. Reports furnished THE IRON AGE show that imports of the alloy in August did not exceed 1200 tons, the lowest for any month in the last year and a half. Private advices from Great Britain also are to the effect that the manganese ore problem there is a serious one, and that one ferromanganese producer has been obliged to divert some of his ore supplies to his competitors. Press reports from Brazil state that a tax of 8 per cent seaboard is to be placed on manganese ore exports. This is figured to mean an advance of 4c. per unit over present prices if made a law. Spiegeleisen continues quiet at \$80 to \$82.50, furnace, for this year. The 50 per cent ferro-silicon market is quiet and steady with \$200 asked for material desired this year, and \$140 to \$175 for 1918 requirements.

Finished Iron and Steel.—The price announcement of the President on Sept. 24 is the all-absorbing topic. It is so general in terms that the trade has not yet decided how to take it and sales offices are without any advices whatever from company heads as to how to proceed. Inquiries from buyers have generally been merely in the nature of requests as to what actually is meant and no quotations have been made on a basis of these prices.

One buyer, however, has offered 8c. for 400 tons of plates for export on which a license is said to have been obtained and 1250 tons of plates to be put in storage on the Pacific Coast have been offered at 9c. Opinions as to the effect of the prices are widely divergent. A few hold that they are to be regarded as maximum and that new business is to be taken at these prices and that in that event there may be some revision of prices on existing contracts, largely with the idea that otherwise buyers on contracts would be unduly penalized, assuming it possible to get deliveries substantially as good on the new prices. Others believe that the law of supply and demand will be given free play and that premium prices will continue to exist in the case of urgent needs. Meanwhile the trade is waiting for more specific information, including prices on billets and slabs, and is without intimation as to whether other iron and steel products will also come under the fixed-price arrangement. Doubt is expressed as to the status of brokers, such as those who have been the intermediaries between mills and consumers who require time for payment. There are many questions for which the answers are not yet forthcoming. We quote below the prices ruling last week but they are not necessarily representative of the market at the moment inasmuch as nothing is being done. We quote mill shipments of structural material at 4.445c. to 5.195c., New York; of plates at 8.195c. and higher, New York; steel bars over the rest of this year at 4.195c. to 4.695c., New York, and iron bars at 4.945c. From New York district warehouses steel and iron bars and shapes are sold at 5c. to 5.50c. and plates at 8c. and higher.

Fabricated Steel—Among contracts which have been closed for buildings in the Eastern section of the country may be mentioned the following: 1400 tons for the Watertown Arsenal, to the New England Structural Co.; 200 tons for a power house for the Niles-Bement-Pond Co., Plainfield, N. J., to the Guerber Engineering Co.; 600 tons for the National Sugar Co., Yonkers, N. Y., to the Hedden Iron Construction Co.; 350 tons for the Musical Mutual Protective Union, New York, to A. E. Norton, and 400 tons at Stamford, Conn., for the Springfield Perch Co., to the Eastern Bridge & Structural Co.

Old Material—Before the announcement of the price on pig iron and finished materials at Washington, there was increased activity in the old material market and prices of heavy melting steel were somewhat higher than they had been recently. The result was that some brokers overbought and when the announcement came from Washington, found themselves with considerable tonnages of scrap on their hands. The market is at a standstill and no quotations are being made. We quote nominal prices of brokers as follows to New York producers and dealers, per gross ton, New York:

Heavy melting steel scrap (for shipment to eastern Pennsylvania)....	\$28.00 to \$28.50
Old steel rails (short lengths) or equivalent heavy steel scrap.....	28.00 to 29.00
Relaying rails	63.00 to 65.00
Re-rolling rails	37.00 to 38.00
Iron and steel car axles.....	43.00 to 44.00
No. 1 railroad wrought.....	39.00 to 40.00
Wrought-iron track scrap.....	30.00 to 31.00
No. 1 yard wrought long.....	30.00 to 31.00
Light iron	8.00 to 10.00
Cast borings (clean).....	19.00 to 20.00
Machine-shop turnings	16.00 to 17.00
Mixed borings and turnings	15.00 to 16.00
Wrought-iron pipe (1 in. minimum diameter, not under 2 ft. long)....	28.00 to 30.00

For cast-iron scrap, dealers in New York City and Brooklyn are quoting as follows to local foundries per gross ton:

No. 1 machinery cast.....	\$30.00 to \$31.00
No. 1 heavy cast (column, building material, etc.)	26.00 to 27.00
No. 2 cast (radiators, cast boilers, etc.)	26.00 to 28.00
Stove plate	18.00 to 19.00
Locomotive grate bars.....	18.00 to 19.00
Old carwheels	31.00 to 33.00
Malleable cast (railroad).....	30.00 to 31.00

Cast Iron Pipe—On 310 tons of 20-in. pipe for Jersey City, bids were opened Tuesday as follows: R. D. Wood & Co., \$58.34; John Fox & Co., \$58.55; Warren Foundry & Machine Co., \$64; Donaldson Iron Co., \$64.30; United States Cast Iron Pipe & Foundry

Co., \$64.75. The contract doubtless will be awarded to R. D. Wood & Co. Cast iron pipe companies naturally are keenly interested in the \$33 price on pig iron, announced at Washington, but prices have not been changed and nominal quotations are on carload lots of 6- and 8-in. and heavier \$65.50 per ton and \$68.50 on 4-in.

IRON AND INDUSTRIAL STOCKS

Stocks Advance After Announcement of Prices Named at Washington

Last week in the stock market there was some irregularity, but on the whole the trend was upward. The fixing of the price of copper at 23½c. had a favorable effect. Most of the leading stocks recorded gains during the week, including the following: Baldwin Locomotive Co., 1½; Bethlehem Steel Co., 7½; Lackawanna Steel Co., 2; Republic Iron & Steel Co., 2¼; United States Steel Corporation, 3¼.

When the announcement concerning fixing of prices on iron ore, coke, pig iron and steel products was made Monday, the effect was good on the stock market and the upward trend was general. Among the stocks which recorded advances were the following:

American Car & Foundry Co., 1¼; Bethlehem Steel Co., 1¼; Republic Iron & Steel Co., 2½; Midvale Steel Co., 1; United States Steel Co., 2; United States Steel preferred, ¼. Railway equipment concerns and those engaged in the manufacture of automobiles and accessories also reported advances.

Most stocks made further gains Tuesday, but the upward movement was checked by the high interest rate on call loans.

The range in prices on active iron and steel stocks from Wednesday of last week and Tuesday of this week was as follows:

Allis-Chal., com. 22¼-26	Int. Har. Corp., com. 69 - 72
Allis-Chal., pref. 81½-82½	Lacka. Steel 81 - 86
Am. Can, com. 40 - 44½	Lake Sup. Corp. 15½-17½
Am. Can, pref. 100½-102½	Lima Loco. 56 - 57
Am. Car & Fdy., com. 69 - 73½	Midvale Steel .. 49½-53
Am. Car & Fdy., pref. 109	Nat.-Acme Steel .. 32 - 33
Am. Loco., com. 60½-64½	Nat. En. & Stm., com. 43 - 45½
Am. Loco., pref. 101¼-101½	Nat. En. & Stm., pref. 93½
Am. Rad., com. 295	N. Y. Air Brake 120 - 129½
Am. Ship, com. 88½-92½	Nova Scotia Steel 93 - 95½
Am. Steel Fdries. 65 - 68	Pitts. Steel, pref. 97½-99½
Bald. Loco., com. 58½-66	Pressed Stl., com. 62 - 64½
Bald. Loco., pref. 100¼-101	Ry. Steel Spring, com. 45 - 47½
Beth. Steel, com. 93½-98½	Republic, com. .. 79 - 85
Beth. Steel, class B 91½-97½	Republic, pref. 100¼-101½
Carbon Stl., com. 88 - 90	Sloss, com. 44 - 46½
Cent. Fdry., pref. 44	Sloss, pref. 88½
Charcoal Iron, com. 7½-8½	Sup. Steel, 39½-48
Chic. Pneu. Tool. 63 - 64	Sup. Steel, 1st pref. 100½
Colo. Fuel 44 - 47	Transue-Williams 40½-44½
Cruc. Steel, com. 68 - 75½	Un. Alloy Steel. 42½-44
Cruc. Steel, pref. 95½-96½	U. S. Pipe, com. 17 - 17½
Gen. Electric ... 138½-148	U. S. Pipe, pref. 50
Gt. No. Ore. Cert. 32½-36	U. S. Steel, com. 106½-113½
Gulf States Steel 96 - 104	U. S. Steel, pref. 116½-117
Int. Har. of N. J., com. 110 - 112	Va. I. C. & Coke. 58 - 60
	Westing. Elec. .. 44½-47½

Industrial Finances

Reports presented at the annual meeting of the Waukesha Motor Co., Waukesha, Wis., indicated that the total volume of business during the last fiscal year approximated \$2,250,000 and prospects for the new year are for an increase of 50 per cent. The company has an authorized capital stock of \$1,000,000 and employs 600 men, with a monthly payroll in excess of \$50,000. The capacity of the plant has been increased 100 per cent. during the year. All officers and directors were re-elected as follows: President, C. A. Haertel; vice-president, E. R. Estberg; secretary and general manager, Harry M. Horning; treasurer, S. A. Perkins; director, C. W. Newbury.

The Smiley Steel Co., Inc., 120 Broadway, New York, has increased its capital from \$5,000 to \$50,000.

It is announced at Duluth that a mortgage for \$2,500,000 against the Webb Iron Co.'s mine near Hib-

bing, Minn., has just been paid off by the Shenango Furnace Co. The property is now free of incumbrance after seven years of operation. Bonds for the amount mentioned and secured by mortgage were issued in 1910 and were purchased by the Pittsburgh Trust Co. Under the terms of the agreement, the Shenango Furnace Co. operated the property and paid the trust company a royalty of 25 cents a ton on ore mined. The mine has been operated upon a scale sufficient to admit of the royalties taking up the mortgage far in advance of the 20-year period stipulated.

H. S. Kimball, president Remington Arms-Union Metallic Cartridge Co., has announced that the Remington company has just completed an adjustment of its Russian rifle contract on a very satisfactory basis, which concludes its difficulties with respect to this contract and materially improves the financial condition of the company.

At a meeting of the stockholders of Milliken Brothers, Inc., New York, held at Richmond, Va., September 20, it was voted to dissolve the corporation. As an initial move in the dissolution plan the directors declared a distribution of \$10 per share, payable Oct. 1. The company recently disposed of its steel and iron plant at Milliken, Staten Island, to the Downey Shipbuilding Corporation, organized to take over and rebuild the works for a shipbuilding plant. The company was established in 1857 and for many years had its works at Clinton and Bryant Streets, Brooklyn, N. Y. With the intention of operating a plant for rolling shapes, the property was acquired at Mariners' Harbor, Staten Island, and given the name of Milliken.

The Eagle Lock Co., Terryville, Conn., has declared an extra dividend of 1 per cent, payable Oct. 2. The past year the stock has yielded an aggregate of 13 per cent. No announcement has been made of the proposed increase of capitalization from \$1,000,000 to \$5,000,000, recently approved by the stockholders. It is expected that following the December meeting of the directors an increase to at least \$3,000,000 will be announced. The company is building a large number of homes for its employees.

The Pittsburgh Rolls Corporation has made application to list on the Pittsburgh Stock Exchange \$1,500,000 common and \$500,000 preferred stocks (par value \$100 per share) and \$1,000,000 first mortgage 6 per cent convertible sinking fund gold bonds.

On Oct. 1 the Struthers Furnace Co., operating a 400-ton blast furnace at Struthers, Ohio, and through its subsidiary, the Struthers Coal & Coke Co., owning 235 acres of Fayette county, Pa., coal land and 200 beehive ovens, will retire \$75,000 of first and collateral trust 6's, of which \$50,000 will be in advance of maturity. On Oct. 2, 1911, the company authorized a bond issue of \$1,000,000 and issued at that time \$750,000, payable semi-annually, April 1 and Oct. 1, at the rate of \$25,000. In consequence of this advance retirement, \$350,000 of these bonds will have been paid off at the end of the sixth year of the issue, leaving outstanding an even \$400,000 of bonds. The company has a capital stock of \$1,000,000, on which it resumed payment at the annual rate of 10 per cent last October.

Dividends

The American La France Fire Engine Co., Inc., quarterly, 1½ per cent on the common, payable Nov. 15, and 1¼ per cent on the preferred, payable Oct. 1.

The American Laundry Machinery Co., quarterly, 1½ per cent on the common, payable Dec. 5, and 1¼ per cent on the preferred, payable Oct. 15.

The American Screw Machine Co., quarterly, 1¼ per cent and extra 1 per cent, payable Sept. 29.

The American Seeding Machine Co., quarterly, 1 per cent on the common, and 1½ per cent on the preferred, both payable Oct. 15.

The Billings & Spencer Co., quarterly, 2 per cent and extra 3 per cent, both payable Oct. 1.

The Colt's Patent Fire Arms Mfg. Co., quarterly, \$3 per share, payable Oct. 1.

The Hendee Mfg. Co., quarterly, 1¼ per cent on the preferred, payable Oct. 1.

Manning, Maxwell & Moore, Inc., quarterly, 1½ per cent, payable Sept. 29.

The Nova Scotia Steel & Coal Co., Ltd., quarterly, 2 per cent on the common, payable Oct. 15.

The Steel Co. of Canada, Ltd., quarterly, 1½ per cent on the common, and 1¼ per cent on the preferred, both payable Oct. 1.

The Trumbull Steel Co., quarterly, 1½ per cent and extra 2 per cent on the common, and quarterly 1¼ per cent on the preferred, all payable Sept. 30.

Great Bridge Completed

TORONTO, ONT., Sept. 24.—The successful completion of the Quebec Bridge across the St. Lawrence River is a memorable event, in which not merely all Canadians but all scientists and engineers the world over should be permanently interested. It is the greatest cantilever bridge so far constructed, and it will probably remain long unrivalled on account of the difficulties experienced in the process of its construction. It was begun 11 years ago, but its completion was delayed by two accidents. After the collapse of one of the cantilever arms or brackets on Aug. 29, 1907, the bridge was re-designed and the engineers determined to avoid the menace of collapse from cantilever arms of such great length by building the central span on pontoons, floating it down the river and hoisting it into place. This section of the bridge was completed in 1916 and at the time of being hoisted into position it collapsed, the whole section falling into the river below. A new span was then built and the work of hoisting it into place was commenced on Monday, Sept. 17, and was successfully completed and bolted into place on Thursday, Sept. 20. The pre-eminence of this bridge among others of its class is, for the time, fixed by the connecting length of the central span, 1800 feet.

Greaves-Etchells Electric Furnaces

The following installations of Greaves-Etchells electric furnaces are announced by the Electric Furnace Construction Co., Philadelphia: The Steel Corporation of South Africa, two 5-ton furnaces; the Sociedad Espanola de Construcción Naval, Madrid, Spain, two 10-ton and one 6-ton furnace. A 2-ton furnace was recently started at the plant of Kayser Ellison & Co., Sheffield, England, on special aeroplane steels and 28 heats from cold stock in a new furnace are reported to have been obtained from Monday noon to Friday evening.

The wage distribution for August in the Youngstown, Ohio, district, totaled \$5,634,982, as compared with \$5,253,626 for July, \$5,795,064 for June and \$3,888,129 for August, 1916, according to bank figures. This disbursement brings the total for the first eight months to \$41,070,906, as compared with \$28,148,082 for the corresponding 1916 period, and shows how plant extensions and frequent wage advances have affected payroll disbursements over the 12 months, in the Youngstown, Ohio, district.

The Patterson-Kelley Co., Inc., has been formed to succeed the firms of Frank L. Patterson & Co. and Benjamin F. Kelley & Son. The new company will continue along the same lines as the two organizations which it succeeds, viz., the heating of water and the manufacture of water heaters. Offices will be maintained at 26 Cortlandt Street, New York.

The Winchester Repeating Arms Co., New Haven, Conn., has resumed working on a night shift and it is reported that the working force will be increased to 20,000 employees.

Fisher Brothers & Co., 297 Morris Avenue, Bronx, New York, metals and scrap iron, have increased their capital from \$10,000 to \$100,000.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 19.5c.; Philadelphia, 18.5c.; Boston, 21.5c.; Buffalo, 11.6c.; Cleveland, 10.5c.; Cincinnati, 15.8c.; Indianapolis, 17.9c.; Chicago, 18.9c.; St. Louis, 23.6c.; Kansas City, 43.6c.; Omaha, 43.6c.; St. Paul, 32.9c.; Denver, 68.6c.; New Orleans, 30.7c.; Birmingham, Ala., 45c.; Denver pipe, 76.1c.; minimum carload, 46,000 lb.; structural steel and steel bars, 76.1c., minimum carload, 40,000 lb.; Pacific coast (by rail only), pipe, 65c.; structural steel and steel bars, 75c., minimum carload, 60,000 lb. No freight rates are being published via the Panama Canal, as the boats are being used in transatlantic trade.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in., angles, 3 to 6 in. on one or both legs, $\frac{1}{4}$ in. thick and over, and zees 3 in. and over, 4.00c.

Wire Products

(Prices of independent mills)

Wire nails, \$4 base per keg; galvanized, 1 in. and longer, including large-head barb roofing nails, taking an advance over this price of \$2, and shorter than 1 in., \$2.50. Bright basic wire, \$4.05 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3.95; galvanized wire, \$4.65; galvanized barb wire, and fence staples, \$4.85; painted barb wire, \$4.15; polished fence staples, \$4.15; cement-coated nails, \$3.90 base, these prices being subject to the usual advances for the smaller trade all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 43 per cent off list for carload lots, 42 per cent off for 1000-rod lots, and 41 per cent off for small lots, f.o.b. Pittsburgh.

Nuts and Bolts

Discounts in effect for large buyers are as follows, delivered in lots of 300 lb. or more, when the actual freight rate does not exceed 20c. per 100 lb., terms 30 days net, or 1 per cent for cash in 10 days.

Carriage bolts, small, rolled thread, 40 per cent; small cut thread, 35 and 2 $\frac{1}{2}$ per cent; large, 25 per cent.

Machine bolts, h. p. nuts, small, rolled thread, 40 and 10 per cent; small cut thread, 40 per cent; large, 30 per cent.

Machine bolts, c. p. c. and t. nuts, small, 30 per cent; large, 20 per cent. Bolt ends, h. p. nuts, 30 per cent with c. p. nuts, 20 per cent. Lag screws (cone or gimlet point), 45 per cent.

Nuts, h. p. sq. blank, \$2.10 off list, and tapped, \$1.90 off; hex., blank, \$1.90 off, and tapped, \$1.70 off; nuts, c. p. c. and t. sq. blank \$1.70 off; and tapped, \$1.50 off; hex. blank, \$1.60 off, and tapped, \$1.40 off. Semi-finished hex. nuts, 50 and 10 per cent. Finished and case-hardened nuts, 50 and 10 per cent.

Rivets 7/16 in. in diameter and smaller, 40 per cent.

Wire Rods

Soft Bessemer and open-hearth rods to domestic consumers at \$90 to \$95; high-carbon rods made from ordinary open-hearth steel \$95 to \$100, and special steel rods with carbons running from 0.40 to 0.60, \$100 to \$110 at mill; above 0.60 carbon, \$115 to \$120.

Railroad Spikes and Track Bolts

Railroad spikes 9/16 in. and larger, \$7.00; $\frac{3}{4}$ in., 7/16 in. and $\frac{1}{2}$ in., \$7.00 base. Boat spikes are occasionally quoted \$7.00 to \$8.00, all per 100 lb., f.o.b. Pittsburgh, but some makers are quoting higher. Track bolts with square nuts, 7c. to 7.50c. to railroads, and 8c. to 8.50c. in small lots, for fairly prompt shipment.

Steel Rails

Angle bars at 3.50c. to 3.75c. at mill, when sold in connection with orders for standard section rails, and on carload and smaller lots, 4c. to 4.25c. at mill. Light rails, 25 to 45 lb., \$75 to \$80; 16 to 20 lb., \$80 to \$81; 12 and 14 lb., \$82 to \$83; 8 and 10 lb., \$83 to \$84; in carload lots, f.o.b. mill, with usual extras for less than carloads. Standard Bessemer rails, \$38; open-hearth, \$40, per gross ton, Pittsburgh.

Tin Plate

Effective July 31, prices on all sizes of terne plate were advanced from \$2 to \$2.50 per package and are now as follows: 8-lb. coating, 200 lb., \$16 per package; 8-lb. coating, I. C., \$16.30; 12-lb. coating, I. C., \$17.50; 15-lb. coating, I. C., \$18.25; 20-lb. coating, I. C., \$19; 25-lb. coating, I. C., \$20; 30-lb. coating, I. C., \$21; 35-lb. coating, I. C., \$22; 40-lb. coating, I. C., \$23 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 4c. to 4.50c. for delivery late this year, and 4.50c. to 5c. from warehouse, in small lots for prompt shipment. Refined iron bars, 4.75c., railroad test bars, 5.25c. in carload and larger lots f.o.b. mill.

Wrought Pipe

The following discounts on steel are to jobbers for carload lots on the Pittsburgh basing card in effect from May 1, 1917, all full weight, except for LaBelle Iron Works and Wheeling Steel & Iron Co., which quote higher prices, and National Tube Co., which adheres to card of April 1.

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$...	42	15 $\frac{1}{2}$	$\frac{1}{8}$ and $\frac{1}{4}$	23	+4
$\frac{1}{2}$	46	31 $\frac{1}{2}$	$\frac{3}{8}$	24	+3
$\frac{3}{4}$ to 3.....	49	35 $\frac{1}{2}$	$\frac{1}{2}$	28	10
			$\frac{3}{4}$ to 1 $\frac{1}{2}$	33	17

Lap Weld		
2.....	42	29 $\frac{1}{2}$
2 $\frac{1}{2}$ to 6.....	45	32 $\frac{1}{2}$
7 to 12.....	42	28 $\frac{1}{2}$
13 and 14.....	32 $\frac{1}{2}$	..
15.....	30	..

Butt Weld, extra strong, plain ends

$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$...	38	20 $\frac{1}{2}$	$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$...	22	5
$\frac{1}{2}$	43	30 $\frac{1}{2}$	$\frac{1}{2}$	27	14
$\frac{3}{4}$ to 1 $\frac{1}{2}$	47	34 $\frac{1}{2}$	$\frac{3}{4}$ to 1 $\frac{1}{2}$	33	18
2 to 3.....	48	35 $\frac{1}{2}$			

Lap Weld, extra strong, plain ends

2.....	40	28 $\frac{1}{2}$	2.....	27	14
2 $\frac{1}{2}$ to 4.....	43	31 $\frac{1}{2}$	2 $\frac{1}{2}$ to 4.....	29	17
4 to 6.....	42	30 $\frac{1}{2}$	4 $\frac{1}{2}$ to 6.....	28	16
7 to 8.....	38	24 $\frac{1}{2}$	7 to 8.....	20	8
9 to 12.....	33	19 $\frac{1}{2}$	9 to 12.....	15	3

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variation in weight of 5 per cent. Prices for less than carloads are four (4) points lower basing (higher price) than the above discounts on black and 5 $\frac{1}{2}$ points on galvanized.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers are seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe are nine (9) points lower (higher price).

Boiler Tubes

Nominal discounts on less than carload lots, freight added to point of delivery, effective from Nov. 1, 1916, on standard charcoal iron tubes and from April 2, 1917, on lap-welded steel tubes are as follows:

Lap-Welded Steel	Standard Charcoal Iron
1 $\frac{1}{2}$ and 2 in.....	1 $\frac{1}{2}$ in.....
2 $\frac{1}{2}$ in.....	1 $\frac{1}{2}$ and 2 in.....
2 $\frac{1}{2}$ and 3 $\frac{1}{2}$ in.....	2 $\frac{1}{2}$ in.....
3 and 3 $\frac{1}{2}$ in.....	2 $\frac{1}{2}$ and 3 $\frac{1}{2}$ in.....
3 $\frac{1}{2}$ to 4 $\frac{1}{2}$ in.....	3 and 3 $\frac{1}{2}$ in.....
5 and 6 in.....	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$ in.....
7 to 13 in.....	5 and 6 in.....
	7 to 13 in.....

Above discounts apply to standard gages and to even gages not more than four gages heavier than standard in standard lengths. Locomotive and steamship special charcoal grades bring higher prices.

1 $\frac{1}{2}$ in., over 18 ft., and not exceeding 22 ft., 10 per cent net extra.

2 in. and larger, over 22 ft., 10 per cent net extra.

Sheets

Makers' prices for mill shipments on sheets of United States standard gage, in carload and larger lots, are as follows, 30 days net or 2 per cent discount in 10 days: [Open-hearth stock, \$5 per ton above these prices.]

Blue Annealed—Bessemer

Nos.	Cents per lb.
Nos. 3 to 8.....	8.00 to 8.50
Nos. 9 and 10.....	8.25 to 8.50
Nos. 11 and 12.....	8.50 to 8.75
Nos. 13 and 14.....	8.75 to 9.00
Nos. 15 and 16.....	9.00 to 9.25

Box Annealed, One Pass Cold Rolled—Bessemer

Nos. 17 to 21.....	8.30 to 8.50
Nos. 22 and 24.....	8.35 to 8.55
Nos. 25 and 26.....	8.40 to 8.90
No. 27.....	8.45 to 9.00
No. 28.....	8.50 to 8.95
No. 29.....	8.55 to 9.05
No. 30.....	8.65 to 9.15

Galvanized Black Sheet Gage—Bessemer

Nos. 10 and 11.....	8.50 to 9.00
Nos. 12 and 14.....	8.60 to 9.10
Nos. 15 and 16.....	8.75 to 9.25
Nos. 17 to 21.....	8.90 to 9.40
Nos. 22 and 24.....	9.05 to 9.55
Nos. 25 and 26.....	9.20 to 9.70
No. 27.....	9.35 to 9.85
No. 28.....	9.50 to 10.00
No. 29.....	9.75 to 10.25
No. 30.....	10.00 to 10.50

Tin-Mill Black Plate—Bessemer

Nos. 15 and 16.....	7.80 to 8.30
Nos. 17 to 21.....	7.85 to 8.35
Nos. 22 to 24.....	7.90 to 8.40
Nos. 25 to 27.....	7.95 to 8.45
No. 28.....	8.00 to 8.50
No. 29.....	8.05 to 8.55
No. 30.....	8.05 to 8.55
Nos. 30 $\frac{1}{2}$ and 31.....	8.10 to 8.60

Metal Markets

The Week's Prices

Cents Per Pound for Early Delivery							
Copper, New York		Tin.	Lead—		Spelter—		
Electro-	New	New	New	St.	New	St.	
Sept. Lake	lytic	York	York	Louis	York	Louis	
19.....26.25	26.25	61.62½	8.00	7.87½	8.37½	8.12½	
20.....26.25	26.25	61.25	8.00	7.87½	8.37½	8.12½	
21.....23.50	23.50	61.27½	8.00	7.87½	8.50	8.25	
22.....23.50	23.50	...	8.00	7.87½	8.50	8.25	
24.....23.50	23.50	62.25	7.95	7.82½	8.50	8.25	
25.....23.50	23.50	62.00	7.95	7.82½	8.50	8.25	

NEW YORK, Sept. 25

There is practically no buying of copper at the Government control price of 23.50c. The market is dull and virtually nominal at that quotation. Tin is dull but slightly higher. Lead is offered by independent producers at 7.95c. and buyers are holding off. Spelter is unchanged, being strong and confident as to future. Antimony is dull.

New York

Copper.—The fixing of a price for copper by the Government at 23.50c. has cleared the atmosphere to some extent, but has left in its trail a number of difficulties which must be straightened out before normal trading becomes possible. One of the questions yet to be settled is, are prime Lake, arsenical Lake, electrolytic and casting copper all to take the same price—23.50c.? Producers are in doubt on this point and are not selling. In the absence of notable sales, the market may be quoted nominally at the control price. There has been a better inquiry since the control price was announced, but little business has been done for the reason that producers are not yet aware of what the Government's requirements will be and as all Government orders must take precedence, they do not want to commit themselves at this time. A solution of the problem of resales of copper by jobbers and retailers must also be found. At present jobbers and retailers do not know whether they are permitted to sell at a profit above the control price or not. Some of these have copper which has cost them up to 32c. or over and it is not yet known whether they are to be permitted protection against loss.

Tin.—On Sept. 19 and 20 the market was nearly stagnant, though one seller claims fair sales. On Sept. 21 more interest was shown by buyers and at the close of the day there were several inquiries, but not much business was placed. Monday, Sept. 24, was also quiet and the total sales are estimated at from 100 to 125 tons. Yesterday (Tuesday) cables from abroad were greatly delayed and business came to a dead stop, with only one sale reported, a 25-ton lot for future shipment from the Far East. A report was received here Monday that the British Government had placed an embargo for the month of October on shipments of tin from the Straits Settlements, but this lacks confirmation.

Lead.—Following the action of the leading producer in reducing the price of lead to 8c., independent makers showed an inclination to cut below this figure, and on Monday and Tuesday of this week quotations were to be had at 7.95c., New York. This tendency of the independents to make offerings at a lower price has checked whatever large buying might have been done, buyers evidently hesitating to place orders until it has been determined whether the bottom has been reached. Should the independents reduce prices still further, say to 7.75c., it is predicted that it might have the effect of placing all buyers in a still more positive waiting attitude. The needs of consumers are emphasized by the fact that throughout the week there have been urgent inquiries for small lots for prompt shipment, and it is asserted that these tonnages were in many instances badly needed and will simply tide consumers over until they make up their minds that it is a safe time to buy. Large buying must eventually be done. The quotation yesterday in the outside market was 7.95c., New York, or 7.82½c., St. Louis.

Spelter.—The general tone of the market is unchanged; it continues strong and confident as to the future. Prices have advanced a point in the past week and are now 8.25c., St. Louis, or 8.50c., New York, for prime Western for early delivery. For delivery later in the year the market is from ½c. to ¼c. per lb. higher, but very little business is reported as being done for these positions, producers manifesting an unwillingness to commit themselves beyond early deliveries. For the latter fair transactions are reported as quietly negotiated at the prices quoted above. The fact that lead has fallen to the Government level and that a fairly satisfactory copper price has been announced by the Government are stabilizing influences.

Antimony.—Chinese and Japanese grades continue obtainable at 15c. to 15.50c., New York, duty paid, but demand is small and the market is dull.

Aluminum.—The market is unchanged and inactive with 41.50c. to 42.50c., New York, asked for No. 1 virgin metal, 98 to 99 per cent pure.

Old Metals.—The market came to a complete stop when the Government fixed the price for Ingot Copper. Sellers will not part with their metal at less than the old prices and buyers are loathe to purchase on this basis with the Government 23½c. price in effect.

There does not appear to be much stock in the hands of dealers and as the metal they have was purchased on the higher basis buyers for spot material are likely to be obliged to pay the prices asked. We are quoting, nominally, the same prices as last week with the exception of lead, which is lower. We quote:

	Cents per lb.
Copper, heavy and crucible.....	26.50 to 27.00
Copper, heavy and wire.....	25.50 to 26.00
Copper, light and bottoms.....	22.50 to 23.50
Brass, heavy.....	18.00 to 18.25
Brass, light.....	14.00 to 14.25
Heavy machine composition.....	25.00 to 25.50
No. 1 yellow rod brass turnings.....	17.25
No. 1 red brass or composition turnings.....	19.00 to 21.00
Lead, heavy.....	7.50
Lead, tea.....	7.00
Zinc.....	6.50

Chicago

SEPT. 24.—Dealers in copper decline to quote on futures, or on any material that is not actually in stock. For what metal they have on hand they ask 27c. to 28c., whether it be Lake, electrolytic or casting. General conditions have been knocked sky-high by the Government's action in fixing 23.50c. as the producers' price. Some efforts to get copper at that level have been unavailing, and jobbers are doubtful as to what is going to happen. They are of the belief, however, that trading from store cannot be stopped. The one certain thing is that the official price will hold down the market. The other metals have been dull. We quote as follows: Casting, Lake and electrolytic copper, 27c. to 28c.; tin, carloads, 63c.; small lots, 65c. to 66c.; lead, 7.95c. to 8.50c.; spelter, 8.25c.; sheet zinc, 19c.; antimony, 17c. to 18.50c. On old metals we quote buying prices for less than carload lots as follows: Copper wire, crucible shapes, 22.50c.; copper clips, 21.50c.; copper bottoms, 21c.; red brass, 21c.; yellow brass, 16c.; lead pipe, 6.75c.; zinc, 6.25c.; pewter, No. 1, 35c.; tinfoil, 42c.; block tin, 47c.

St. Louis

SEPT. 24.—Non-ferrous metals were decidedly quiet during the week and the Missouri product closed to-day: Lead, carload lots, 7.87½c. to 7.92½c.; spelter, 8.25c. to 8.37½c. for carload lots. For less than carload lots the prices were: Lead, 10c.; spelter, 9c.; tin, 66c.; Lake copper, 30c.; electrolytic copper, 29.50c.; Asiatic antimony, 18c. The Government's price fixing on copper has not yet affected the small lot market at this point. In the Joplin district zinc blende was rather quiet and shipments were lighter than usual because of the car shortage prevailing. Prices ranged, basis of 60 per cent metal, \$65 to \$75 per ton, with the second grade ores \$1 to \$2 per ton cheaper than the week before. The average for the district for the week was \$69 per ton. Calamine was quiet at \$35 to \$42 per ton, basis of 40 per cent metal, with the average for the district at \$38 per ton. Lead ore was quiet at \$90 per ton, basis of 80 per cent metal.

Industry United to Aid the Government

War Convention at Atlantic City Makes a Strong Expression in Favor of Cooperation in Handling Present Economic Problems

Readers of THE IRON AGE are chiefly interested in the proceedings of the Atlantic City convention of the Chamber of Commerce of the United States last week because the spirit of that convention was typical of what is the dominant note in all industry and of business in these war days. There were probably 1500 delegates in attendance, most of them representing Chambers of Commerce. Banking, shipping, exporting, jobbing and retail interests were prominently represented. Not many iron and steel manufacturers were seen, but there was a good sprinkling of manufacturing consumers of steel representing various lines of metal working.

There were three days of addresses and discussions, all dealing with problems thrust upon business by the entrance of the United States into the war. The one thought that more than all others permeated the sessions was that of co-operation between business and the Government. The revolution in the thinking of officials at Washington brought about by the nation's going to war and that led heads of departments at Washington to call for help from the very business men whom before they had opposed, was alluded to in one way and another many times as the sessions went on. Secretary Lane and Secretary Baker made ringing addresses which evoked an enthusiastic response. Secretary Wilson in a group session reiterated what has been brought out frequently concerning relations of employers and employees, that there should be no change in conditions of employment (referring particularly to union or open shop conditions) during the war. There was a very general expression, however, in informal talk among the delegates to the effect that labor had not been slow to take advantage of war conditions to make any change it was able to bring about.

Concentrating Government Buying

Addresses by Lord Northcliffe and Food Administrator Hoover attracted large and eager audiences. Chairman Scott of the War Industries Board, Walter S. Gifford, director of the Council of National Defense, and Waddill Catchings, chairman of the committee of the National Chamber in co-operation with the Council of National Defense, brought out forcibly the lessons thus far learned from the more intimate co-operation of business men with the authorities at Washington.

There was a strong sentiment in the convention in favor of the concentration of Government buying in the hands of one board with full power and one of the resolutions of the convention called for such a change.

Foreign Trade to the Front

The difficulties exporters have had since embargoes were placed on many products were alluded to at one of the sessions and one speaker favored the granting of export licenses with no stipulated time, but revocable at any time by the license board. Chief of the difficulties now encountered are those due to the inability of export companies to place business with any assurance of getting deliveries in the 60 days' leeway granted at present.

President James A. Farrell of the Steel Corporation brought out in a thoughtful address the part played by the export trade in the winning of the war. The problem of maintaining exports after the war was dealt with in several strong addresses, John D. Ryan, president Anaconda Copper Co., showing how ill-prepared most of the manufacturers of the United States would be at the end of the war to compete with other countries to hold a business in which they had been but opportunists in the past three years. The passage of the Webb bill, permitting American manufacturers to co-operate in foreign trade, was strongly urged and a resolution to that effect was passed.

Sherman Act Suspended

Alba B. Johnson, president Baldwin Locomotive Works, brought a ringing response from the convention to his reference to the Sherman act. It may almost be said that the men who attended this convention considered that the Sherman act has been practically suspended by the Government in its invitation to business men in all lines to get together in respect to prices and the distribution of their product in war time. Mr. Johnson said that for 20 years the nation has been offering up a sacrifice to the false god of unlimited competition. The altar on which the sacrifice has been offered, he said, is the Sherman act. It has already been demonstrated that the Sherman act will not stand the strain of war conditions, the Government itself having eliminated competition in the endeavor to insure fair prices.

Mr. Ryan pointed to foreign trade as the only means of employing after the war the millions of men who are now supplying munitions and all other war equipment.

Industries Should Organize for Co-operation

As to the means by which business can co-operate with the Government, it was the consensus of the speakers that the various industries and trades should be represented at Washington by committees, regardless of the composition of committees already serving as auxiliary to the Council of National Defense. It was urged that wherever an organization of manufacturers existed in any industry, that organization should at once take steps to create a committee, taking care to have a representation on such committee of any firms in the industry not belonging at present to any manufacturers' organization.

At one of the group meetings, William Butterworth, president John Deere Plow Co., Moline, Ill., told how the Government was able, with the co-operation of wagon manufacturers, to place orders for 34,000 army wagons without disturbing the market either for the steel or the lumber required by such an unprecedented order. A similar example of fine service was found in the shoe trade, in which there had been the fullest co-operation on the part of manufacturers with the committees at Washington which negotiated army contracts.

The resolutions adopted by the convention were the siftings from more than 100 proposals submitted for indorsement, representing nearly every conceivable phase of the economic problems growing out of the war. It was declared to be the spirit of American business, no matter how fundamental might be the change in the relation of the Government to business, that the Government should have the power during the war to control prices and the determination of production for public and private needs "to whatever extent may be necessary for our great national purpose." The formation of a general committee of industry, representing all branches, was recommended, this committee to assist the Government in connection with purchases. A later adjustment board to handle all major disputes was urged. A resolution was also passed favoring the suspension of laws which prevent foreign vessels from engaging in coastwise trade.

Consumers of Steel Confer

Just before the convention adjourned announcement was made from the platform that at the request of Zenas W. Carter, Cleveland, representing the metal lath manufacturers, a conference of manufacturing consumers of steel would be held immediately in the convention hall. A number of representatives of metal-working industries responded. In addressing them Mr. Carter said that a number of users of steel desired that some action be taken looking to their representa-

tion in any conference at Washington at which prices to be fixed by the Government were considered. It was the view of some present that it was then rather late to start such a movement, as the announcement of Government prices might be expected any day. No action was taken, but it was urged by several manufacturers that correspondence be undertaken at once between various organizations in the industries using steel products with a view to making the influence of consumers felt in future adjustments of prices. The opinion was expressed that the prices about to be announced at Washington would be subject to change within a few months and meantime users should select representatives who could properly present the case of consumers.

PERSONAL

G. B. Wickersham, vice-president and general manager of the Diamond Forging & Mfg. Co., N. S. Pittsburgh, Pa., has resigned, effective Oct. 1, to become vice-president and general manager of the Louisville Steel & Iron Co., Louisville, Ky., manufacturer of iron and steel bars and black and galvanized steel sheets. Mr. Wickersham has been connected with the Diamond Forging & Mfg. Co. since it was organized seven years ago, and under his efficient management the company has been very successful. His successor has not yet been appointed.

Perley R. Prescott, consulting engineer for the Erie City Iron Works, Erie, Pa., will sail for Japan, Oct. 12, to be employed by the American Trading Co. in installing engineering plants in that country.

William B. Curtis, assistant sales manager of the conduit department of the Youngstown Sheet & Tube Co., Youngstown, Ohio, has been made a first lieutenant in the Officers' Reserve Corps of the Federal Ordnance Department, and has reported to Washington.

James E. Ferguson, president of the Ferguson Steel & Iron Co., Buffalo, has been commissioned a captain in the United States Signal Corps and appointed manager of inspection for the district of western New York and northern Pennsylvania, which will include the cities of Buffalo, Rochester, Syracuse and Hammondsport. He will have charge of inspection of all aeroplanes, automobiles for war purposes, telegraph and radio instruments made in this district. In the four years since Mr. Ferguson organized the Ferguson Steel & Iron Co. he has built up a very extensive business in the fabrication of structural steel and in the warehousing and distribution of bars, plates, structural shapes, etc., rendering it necessary to enlarge the capacity of the plant several times from the original structure of 100 by 150 feet to structures covering four and one-half acres. His time and ability are now at the command of the Government for \$1,800 per year.

Frank W. Brooke, recently metallurgist with the Ludlum Steel Co., Watervliet, N. Y., has joined the staff of the Electric Furnace Construction Co., Philadelphia, as a director, taking charge of the construction and operation of the Greaves-Etchells furnaces. He will be assisted by G. W. Ketter, who has installed a number of furnaces of various types, particularly the ten Heroult furnaces for the British Forgings Co., Ltd., Toronto, Canada. Mr. Brooke had earlier connection with the operation of the Grönwall-Dixon furnace at the plant of John A. Crowley & Co., Detroit.

W. E. Keplinger, president of the Peters Cartridge Co., Cincinnati, has been elected president of the Cincinnati Business Men's Club, succeeding Col. F. W. Galbraith, Jr., who resigned because of military duties.

Archibald Johnston, vice-president Bethlehem Steel Co., was overwhelmingly nominated as candidate for mayor of the recently chartered city of Bethlehem, Pa. Because of the large vote for Mr. Johnston, his name will appear alone on the ballot at the general election in November, assuring his election.

George O. Klaiss has resigned his position at the Steelton, Pa., plant, Bethlehem Steel Co., to become

assistant superintendent of the forge shops at the Easton plant, William Wharton, Jr., Co.

W. K. Hart, Jr., Midland, Pa., has been appointed manager of the Midland Improvement Co. and the Midland Water Co., vice W. C. Rice, resigned.

Harry G. Fawcett, advertising manager Chain Belt Co., Milwaukee, for several years, resigned Sept. 15 to engage in advertising business in Milwaukee.

C. E. Doud, Chicago manager of the industrial furnace department of Strong, Carlisle & Hammond, Cleveland, has received a commission as first lieutenant in the Ordnance Officers' Reserve Corps. He left Chicago Sept. 22 for service at Watervliet, N. Y.

H. H. Peck, formerly western sales agent for the Scullin Steel Co., with headquarters at Seattle, has completed his enlistment as sergeant of the ambulance section attached to the American Red Cross Military Hospital No. 1 at Neuilly S/Seine and has been commissioned as first lieutenant in the Ordnance Officers' Reserve Corps. His address is care of Ordnance Advance Depot, No. 1, American Expeditionary Forces, France, via New York.

R. E. Blazo has been transferred from the Boston office to the Philadelphia sales office of Rogers, Brown & Co., pig iron and coke.

William S. Boyd of the purchasing department of the Crucible Steel Co. of America, Pittsburgh, has resigned to become purchasing agent of the Page Woven Wire Fence Co., Monessen, Pa.

J. B. Beall, for the past two years manager of factory sales for the Wayne Oil Tank & Pump Co., Fort Wayne, Ind., has been assigned to the management of a new branch office located at Cleveland. J. D. Rauch, formerly treasurer of the American Steel Dredge Co., Fort Wayne, and for the past two months engineer Wayne Co., has been appointed manager of factory sales.

C. L. Altemus has been appointed manager of the metals department of the Pacific Commercial Co., 11 Broadway, New York, in charge of iron and steel and other metals. The company is engaged in exporting, particularly to the Far East. Mr. Altemus was for about 10 years with the Cambria Steel Co., part of that time in the metallurgical department in special research work and later in the sales department, and was subsequently New York manager of the American Steel Export Co. when that organization was still a part of the Cambria Steel Co.

A. W. Payne has been placed in charge of the branch office which the Crane Packing Co., Chicago, maker of the John Crane flexible metallic packing, has established in the Woolworth Building, New York.

H. H. Barbour, district sales manager of the Lackawanna Steel Co., New York, is now on leave in Washington associated with J. Leonard Replogle in priority work for the War Industries Board. George Prendergast, of the New York office of the Lackawanna Steel Co., is acting district sales manager in Mr. Barbour's absence.

The Asbestos Protected Metal Co., Pittsburgh, announces the opening of a sales office in the Union Central Building, Cincinnati, under the direction of J. C. Lathrop.

The Wilkoff & Vaughn Co., Inc., 50 Church Street, New York, dealer in scrap material, has opened an office in Philadelphia in the Widener Building. A. Brice Moore has been appointed manager.

P. A. von Mohrenschildt, New York, American representative and purchasing agent for Nobel Brothers Petroleum Production Co., Petrograd, Russia, will leave for Russia on Sept. 29 to make a report on the condition of the petroleum industry in the United States. Mr. von Mohrenschildt, in view of the fact that oil well supplies, and especially casings, are very scarce in the United States, is concerned over the difficulty of buying the supplies and casings of which Russia is greatly in need. While in Russia he will seek to arouse interest in an endeavor to better the shipping facilities between the United States and Russia. On account of the large Russian Government orders which have been placed in

this country, almost all the space on steamers sailing to Archangel is taken by such shipments, leaving but 150 to 250 tons capacity to be assigned to private freight on each ship, although there is now in New York and vicinity more than 800,000 tons of freight consigned to private buyers in Russia. These buyers are operating exclusively for Russian national defense, but there is no prospect of moving this freight to Archangel. The other large Russian ports are closed to private freight. Mr. von Mohrenschildt was connected for several years with the business department of THE IRON AGE.

STEEL PLANT POWER COSTS

Problems in Their Determination and Distribution—The Question of By-Products

That a standard method of electric power cost accounting be adopted by steel mills was urged by W. O. Oschmann, engineer of the Oliver Iron & Steel Co. and chairman of the power committee of the Association of Iron and Steel Electrical Engineers at a recent Pittsburgh meeting of that association. He pointed out that present electric power station accounting methods give cost data which are not easily analyzed or compared to the cost of purchased power. He held that the important requirements of a steel mill electric power accounting system are: proper charges against the consuming departments for the cost of power, and proper credits to the departments delivering by-products used by the power plant for the value of the by-products.

The distribution of power costs, he found, after an examination of the accounting systems of several steel companies, should be based upon the cost of delivered power rather than the cost of generated power, the cost of delivered power being the cost of power as furnished to the yards and buildings of the various departments. This cost is the cost to generate or price paid for purchased power plus the cost of delivery to the consuming departments, and includes the cost of repairing and maintaining the lines, cables, transformers, substations, conduits, towers, etc., between the generating stations and the consuming departments, though new work such as installing lines for mill extension, etc., is not included.

Where some departments receive all or part of their power from substations, it is necessary to add to the cost of producing the current the cost of operating the substations. The departments which receive power directly from the generating station should be charged with their share of the cost of producing and distributing the current and the cost of the remainder of the power furnished by the generating station should be charged to the substations, the cost of operating the substations being added to this amount. The departments which receive current from the substations should be charged their pro rata share of this cost. Plants having storage batteries feeding into lines supplying several departments should have the battery station accounted for in the same manner as substations, provision being made for the credit received from the sale of sediments and old plates. Current supplied by the storage battery station should carry an additional charge to cover battery replacements. In all cases the charge to the department should be the cost of producing current plus the cost of furnishing the current to the consuming department.

An accounting system applicable to a central station power plant, according to Mr. Oschmann, probably would not be suitable to steel works, and he suggested that a steel mill power accounting system should include: 1, cost of steam; 2, cost of electric current generated; 3, cost of electric current supplied from generating stations; 4, cost of electric current supplied to consuming departments.

Credits for By-Products

The use of the by-product energy, he explained, requires large investment in machinery and equipment, and great care must be exercised in order that the cost

of electric current is not made inaccurate due to charging to the generating station account, items of investment, operation and maintenance which should be charged to the furnace department or vice versa. Two of the difficult problems are to properly credit the furnace department for gas furnished and the steam department with the steam distributed.

All operating and maintenance charges which develop from the utilization of by-product energy, he held, should be deducted from the value of the energy obtained, so that proper credit can be given the department furnishing the energy and to avoid unjust burdens being placed upon the departments utilizing the waste energy. He pointed out that when steam is obtained from waste heat boilers, the maintenance charge is usually high, but the steam delivered into the steam system is equal in value to a like amount of steam furnished by the central boiler plant or plants. The furnace supplying heat to the boiler, therefore, should be credited with the total value of the steam furnished less the charges of operating and maintaining the boiler.

Where blast-furnace gas is used to generate steam the same method could be employed. The cost per 1000 lb. of steam as supplied by coal-fired boilers being known, the value of all the steam generated by the entire boiler plant, less the total cost of operating the plant, can be credited to the furnace department. In his opinion valuing furnace gas on the basis of the steam or kilowatt-hours produced would be more accurate than a valuation on a B.t.u. basis. Blast furnace gas has no tangible market value. Due to the large quantities required to furnish an appreciable amount of energy it is necessary to use the gas within a reasonable distance of the furnace. To compel the utilizing department to locate apparatus to favor the furnace and then charge the gas at a B.t.u. value does not seem reasonable. Also, when furnace gas is burned under boilers the boiler efficiency, he said, is reduced. On a B.t.u. basis he believes that furnace gas to-day is probably twice as valuable as it was two years ago and that the price of a kilowatt-hour as generated or purchased has not increased to as great an extent.

Pittsburgh and Nearby Districts

The Huessener Engineering Co., Oliver building, Pittsburgh, has recently booked orders for five boilers for the E. & G. Brooke Iron Co., Birdsboro, Pa.; four for the Delta Chemical Co., Wells, Mich.; a repeated order for Ella Furnace Co., West Middlesex, Pa.; five boilers for the Hanging Rock Iron Co., Hanging Rock, Ohio; two for the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., and five for the Union Furnace Co., Ironton, Ohio. The Huessener Engineering Co. has taken up the manufacture of burners for puddling furnaces, brick kilns, etc., and so far has received orders for burners for puddling furnaces for the Kittanning Iron & Steel Co., Kittanning, Pa., for drag furnaces for the Buffalo Bolt Co., Buffalo, and for brick kilns for John H. Ward & Son, Pittsburgh.

The county commissioners of Pittsburgh have awarded a contract to the Van Dorn Iron Works, Cleveland, for steel furniture for the Law Library in the new City-County building in Pittsburgh, for the sum of \$29,238. The Canton Art Metal Co., has received a contract for steel furniture for the same building, amounting to \$2796.

The Virginia Chain Co. has been organized with a capital of \$40,000 to operate a chain factory at Parkersburg, W. Va. The incorporators are John Marshall, C. D. Forrer, M. E. Heihle, E. A. Brast and J. W. Romine.

The Pittsburgh Knife & Forge Co., Pittsburgh, recently bought considerable ground adjacent to its plant on which it will make some large additions and considerably increase its capacity.

The Jennison-Wright Co., Toledo, Ohio, manufacturer of Kreolite wood block flooring, has opened an office in charge of S. C. Conway in rooms 501-502 Keystone Bank Building, Pittsburgh.

FOUNDRY CONVENTIONS

Joint Opening Session at Boston, Monday, of the Two Foundry Associations

The movement to establish satisfactory cost accounting in the foundry industry is gaining considerable headway, judging from the presidential address of J. P. Pero of the American Foundrymen's Association at the opening session Monday afternoon, Sept. 24, in Paul Revere Hall, Mechanics Building, Boston. Mr. Pero, who is identified with the Missouri Malleable Iron Co., East St. Louis, explained that the association's committee on foundry costs had completed arrangements with a firm of accountants to install a simple, practical and efficient cost system in the plants of the members who wish to become subscribers to the foundry cost movement. It was gratifying to the association, he said, and to the committee, of which Vice-president Benjamin D. Fuller is chairman, to report 102 subscribers to this system and a total subscription of over \$7,000.

Mr. Pero's address as well as that of Jesse L. Jones, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., president American Institute of Metals, were features of the session, which as has been the custom for some years is a joint one of the ferrous and non-ferrous technical bodies, signaling the beginning of foundry week as it may be called. The two associations are holding simultaneous sessions and at the same time is an exhibition in Mechanics Building of equipment and supplies for foundry and machine shops.

President Pero's Address

At the outset of his address, Mr. Pero linked himself with some interesting foundry association history. "Previous to this meeting, he said, "we have held but one convention in New England, at Boston in 1902, fifteen years ago. Fifteen years before the Boston convention, and nine years before the first convention of the A. F. A., the New England Foundry Foremen's Association was organized in Springfield, Mass., in 1887. That, so far as I have been able to learn, was the first association of this kind ever organized. It numbered in its membership the leading foundry foremen of that period in New England, some of whom are here to-day, while others are represented by their descendants. It was my good fortune to conceive the idea of such an association, perform the preliminary work for the first meeting and preside at the opening session of that, the first association organized for the purpose of interchange of views and experiences in foundry practice and for the general uplift of the foundry trade. I do not make this statement in a spirit of egotism, but merely to relate an interesting fact in the history of the industry and to explain to you the pleasure and pride I feel in occupying the highest office in this great organization."

"As foundrymen," he continued, "we point with pride to the wonderful progress made in foundry practice in the past twenty-five years, and as members of the A. F. A. we are justly proud of the prominent part our society has played in contributing to the present state of excellence. We have accomplished much, but I predict that those of you who attend our session twenty-five years hence will marvel at the gigantic strides made during that period, even as we now in retrospect wonder at the progress already made."

THE MATTER OF APPRENTICES

He spoke also on the apprentice problem, in part as follows: "One of the supposedly important features of progress during the past twenty-five years in the foundry, as well as in other industries, is known as specialization; but specialization, like many other seemingly good things, has its limitations, and we are at last beginning to realize that specialists are not thorough mechanics. As a consequence, we now face a problem of the utmost importance. It matters not to us whether the present condition has been brought upon us by the desire of the employer for increased production, or decreased cost, or both, or whether the attitude

of the labor unions in restricting the number of apprentices is responsible for existing conditions. This we know, that unless steps are taken to make the foundry industry more attractive to our young men and an efficient system of training and indenturing of our apprentices is adopted, we will have very few capable all-around molders in the next generation." He counted much on the work of the committee representing the association on the Conference Board on Training of Apprentices.

Address of President Jones

Mr. Jones, in his address, mentioned the progress made in non-ferrous technology since the beginning of the war. "Possibly I may safely assert," he said, "that greater advances have been made in that time than in the previous decade. Foremost I may mention the commercial production of electrolytic zinc. Previous to the war the market for high-grade zinc was rather narrow. With the placing of munitions contracts which called for brass with less than 0.1 per cent lead, the demand was greatly augmented and the price mounted rapidly as the firms making high-grade zinc by distillation processes did not have the capacity to supply the unusual market. This resulted in a number of firms engaging in the manufacture of electrolytic zinc, it even being found profitable to cast anodes from prime western spelter and electrolytically refine them. In some cases a purity of 99.98 per cent has been obtained. It will be interesting to users to see whether the electrolytic zinc is able to compete in purity, uniformity and price with the high-grade distilled zinc. If the two processes give equally good results there should be a broader market for high-grade zinc after the war, when prices are lower and supplies abundant. The thin, tough coating that this grade of zinc gives warrants its extensive use in hot galvanizing. It can also be used advantageously in high-grade manganese bronze, aluminum alloys, sheet brass, die cast alloys, etc."

"Instead of the production of electrolytic zinc cathode sheets," he continued, "the product can be converted into zinc dust. As this zinc dust is very pure, it opens the way for improvements in the sherardizing process, the purer the zinc coating on an iron or steel article, the better it will be protected from corrosion."

"The production of electrolytic zinc has resulted in the accumulation of large amounts of slimes or residues high in cadmium. Electrolytic cadmium has been produced experimentally from these slimes and I would suggest active research work in developing new uses on a large scale for metallic cadmium."

ELECTROLYTIC TIN

"Quite recently the production of electrolytic tin has been announced. The difficulty of obtaining Straits tin makes the advent of the electrolytic tin doubly welcome. In the electrical industry, in particular, extremely pure tin is essential as the connectors of electrical apparatus are its most vital parts and require the use of the highest grades of tin obtainable."

"The demand for alloys for aeroplane work has brought magnesium into prominence. This metal, which came entirely from abroad, can now be had in any desired amount from American makers. The extreme lightness of its alloys with aluminum, the high speed at which they can be machined and their relative cheapness bulk for bulk should result in a constantly increasing demand for magnesium."

"The scarcity and high price of antimony has led to the development of a novelty in the shape of electrolytic babbitt. This contains no antimony or tin necessarily, but consists of lead hardened by small amounts of the alkaline earth metals—barium, calcium, etc."

THE CRUCIBLE PROBLEM AND THE ELECTRIC FURNACE

"The crucible makers of the United States have been much handicapped by inability to obtain the Ceylon graphite and Klingenberg clay they formerly used. One prominent manufacturer when asked if any trouble was being had with his goods replied epigrammatically, 'Wherever you find a crucible maker in these days, you find a man very much chastened in spirit.' With characteristic American energy and ingenuity, however,

they have already so adapted the clays and graphite which are available that very fair results are being obtained except possibly on the larger sizes of crucibles.

"The high price of crucibles has led to the very rapid extension of electric furnace melting for non-ferrous metals. Both the carbon resistor and induction type of furnace seem to be doing satisfactory work in melting brass for rolling into sheets for cartridge cases, etc. For foundry work where light castings are run and hot metal required not so much progress has been made. The use of the arc type furnace by a number of manufacturers for the making of tempering alloys or hardeners may also be noted. These alloys are used for the introduction of small amounts of high melting point metals into aluminum alloys and the various bronzes.

CAST COPPER FOR SHELL BANDS

"Recently, when the demand for copper driving bands was so urgent that the tube mills could not meet it, a number of foundries succeeded in producing very satisfactory copper castings for this purpose. When rolled into bands, physical characteristics equal to those found in the drawn tubes were obtainable. In the opinion of many ordnance experts these bands because they are rolled radially are superior to those cut from tubes which are drawn lengthwise. The greatest care is required in order to obtain copper castings that will be sound and clean."

Mr. Jones said that the American Institute of Metals had 282 active members and 64 associates, which includes 28 corporation memberships, each having three members. The last two members received are Dr. H. M. Howe and Sir Robert Hadfield. The association has decided to issue a quarterly journal instead of the annual volume of proceedings. Dr. Paul E. Merica, Washington, D. C., is the editor.

Official Reports

The report of the board of directors told of the financial success of the foundry and machine exhibition at Cleveland last year, the first undertaken by the American Foundrymen's Association itself. A final profit of \$6,829.60 was shown. A refund was made to the exhibitors of 10 per cent of the cost of their space. Also, \$1,000 was transferred to the technical department of the association and the American Institute of Metals was awarded \$166.50, the distribution being based upon the proportionate registration of the two organizations at Cleveland. In addition to the exhibition profits the unexpended portion of the entertainment fund subscribed to by foundrymen of Cleveland and vicinity, manufacturers of foundry equipment and supplies, etc., amounting to \$335.86 was contributed to the American Foundrymen's Association for research work.

Through the year the board moved to organize a nonferrous section, either by absorbing the membership of the American Institute of Metals, or separately, if such amalgamation cannot be effected. Later a committee appointed to perfect an amalgamation reported that the American Institute of Metals had decided not to lose its identity by merging with the American Foundrymen's Association. It was voted that from the 1917 exhibition and thereafter no distribution or appropriation for technical activities be made from exhibition profits to the American Institute of Metals, but that the latter organization share in the entertainment privileges the same as in the past.

A plan was approved which provides for the raising of a fund to be subscribed by the members of the Association participating in the work of the foundry costs committee and the employment of a cost expert to prepare a uniform system of cost accounting to bear the endorsement of the American Foundrymen's Association, Inc., and which is to be installed personally by the cost accountant to be employed by the cost committee. Propositions covering this work were received from Scovell, Wellington & Co., Boston, C. E. Knoeppel & Co., New York, and Searle & Nicholson, New York.

The board, following out the recommendation of the Cleveland meeting, adopted the Government standard for sieves as prepared by the U. S. Bureau of Standards.

Secretary-Treasurer Backert, in his annual report, mentioned that the membership in the fiscal year ended June 30, 1917, passed the 1000 mark, the enrollment on that date being 1017. The actual paid membership was 970, a gain in paid membership for the year of 5½ per cent. He told of the transition in a year from an unincorporated voluntary association to an incorporated organization. Membership is now individual and not by company, as heretofore.

Electrochemists and Electric Manufacture of War Supplies

One of the features of the fall meeting of the American Electrochemical Society at Pittsburgh, next week, Oct. 3 to 6, will be a session devoted to the application of electrochemistry and electric furnaces to the manufacture of war supplies and munitions. Some of the society's members, who have been active in the advisory work in connection with national preparedness, have been asked to take part in this meeting. It is expected that it will prove one of the most interesting features, being both patriotic and scientific.

There will be the usual reading and discussion of papers on the mornings of Thursday and Friday. The afternoons of those two days will be devoted to excursions to various industries, including the American Zinc & Chemical Co., Langeloth, Pa.; the research laboratories of the Youngstown Sheet & Tube Co., Youngstown, Ohio, and the American Sheet & Tin Plate Co., Pittsburgh; the new building of the U. S. Bureau of Mines, the Mellon Institute of Industrial Research, the Republic Chemical Co., Neville Island (detinning of tin scrap), and various by-product coke ovens. Saturday is devoted to an all-day excursion on a special train with a complimentary luncheon, visiting the Westinghouse Electric & Mfg. Co., East Pittsburgh; the National Tube Co., McKeesport, and the large 25-ton electric furnace making steel at the Carnegie Steel Co.

Alexander Dow, president Detroit Edison Co., will deliver an address on Thursday evening on the "Production of Steam from Coal," illustrated by lantern slides. This is regarded as of special interest because of the attention which has been given the subject on account of the shortage of water power at Niagara Falls and the possible necessity of some industries there seeking additional sources of power.

Large Imports of Manganese Ore

Manganese ore imports continue large. For July they were 53,437 gross tons, bringing the total for the year to Aug. 1 to 370,227 tons, as compared with 318,965 tons to Aug. 1, 1916. The present import rate is now 52,889 tons per month, comparing with 52,779 tons per month to July 1, 1917. Unless the monthly rate increases for the rest of the year, the total for 1917 will fall short of the total for the fiscal year by about 12,000 tons. It will be 634,668, as compared with 656,088 tons. The total for 1916, however, was only 526,525 tons, which will be exceeded this calendar year.

The Indianapolis Chamber of Commerce has opened a branch office in Washington for the convenience of the Government when seeking information concerning the facilities of Indiana manufacturers for making war material and supplies. The chamber is completing a survey of the state, so as to have a list of every plant capable of assisting the Government in this direction. The general plan is to have large manufacturers take large contracts and sublet to smaller companies. All the machinery has been listed. The survey shows that in Indianapolis alone more than 200 plants can manufacture war supplies. In order to pay the bureau expenses the Indianapolis Chamber of Commerce is to get a per centage commission on contracts secured through its bureau for Indiana manufacturing plants.

The Poole Engineering & Machine Co., Woodberry, Md., has asked bids on a gun shop to be built at Texas, Md., to cost about \$500,000.

Steel Prices Are Fixed by Agreement

(Continued from page 757)

though somewhat less on finished products than we thought they should be. We believe that these rates will stimulate business throughout the country, and doubtless can be maintained. We were also very much pleased at the reception accorded steel manufacturers by the War Industries Board, who certainly conveyed the impression to us that they wish to do the right thing for steel makers."

An official of one of the leading steel companies had the following to say: "The prices fixed by the President for steel will be accepted loyally by the manufacturers, even with the knowledge that such prices will bear heavily on many mills not entirely self-contained. The President, however, has opened the door for a revision if such a result is shown necessary, by limiting the time to Jan. 1, which gives evidence of his intention to be fair. Whether the prices will bring out a maximum tonnage, with the scarcity of labor, shortage of cars and excessive cost of necessary supplies, can only be determined later. The enormous tonnage required by our Government and Allies, and demanding priority shipment, will probably restrict to a large extent the production of commercial steel, both domestic and foreign."

Differentials from Base Prices

The vice-president of one of the larger steel companies in the Central West gives his ideas as follows:

"It is believed that the prices announced by the authority of the President are in some particulars higher than those which he had in mind before he learned the results of the conference, and it is gratifying to the manufacturers who presented the figures to know that the President believed their statements, as very little change has been made in the figures announced from those submitted as the product of the best judgment of the iron and steel manufacturers. The iron and steel trade is to-day rapidly adjusting itself to the radically changed conditions, feeling that business has been stabilized and put in the best possible shape to meet the war demands.

"A great many adjustments are to be made, of course, such as the establishment of location bases where the base prices will apply and also the establishing of differentials in the varied line of products which grow out of the base articles from iron ore up. The price on iron ore is based upon the 1917 price of non-Bessemer Mesaba ore, f.o.b. Lake Erie docks, and the various grades of ore will take their places in the price list with reference to the base ore. What may be understood by the base price on coke is the maximum price on the best qualities, with a possibility of lower prices for the inferior grades. The price of pig iron seems to be based upon the value of basic and No. 2 foundry irons. Differential prices will be made on one side of the line, possibly for gray forge; on the other, for standard Bessemer, malleable Bessemer, low-phosphorus, ferro silicon, etc. It is presumed that much of this work will be prepared by the committee of the American Iron and Steel Institute, subject to approval of the Governmental board passing upon the main subject.

Many Contract Prices Adjusted

"Many contracts for iron and steel automatically have their prices adjusted upon receipt of the President's decision in the matter, because much iron and steel is sold upon prices which are established from month to month. Concern is expressed in some quarters as to the validity of contracts for many of the products made recently at high prices and it is very reasonable that doubt should be expressed as to the permanency of such contracts. But a few weeks ago, few steel men realized that they would come to agree with the President that the people should be entitled to the same price for their products as might be granted to the United States Government and its Allies, yet, on Friday, the idea of the President was adopted unanimously. The same people can just as reasonably say to-day that the Government cannot abrogate contracts which

in its view may interfere with bringing out the greatest volume of product and still we may look forward to some adjustment being brought about in these things also, just as reasonably as we can look back to the process by which many of our ideas were upset by the conclusion of last Friday's meeting in Washington.

"The broad principle to keep in mind at all times is that the winning of the war is the main thing for all people to strive for whatever sacrifices are necessary in the judgment of the President to bring that about."

Security Values Should be Sustained

Isaac M. Scott, president Wheeling Steel & Iron Co., Wheeling, W. Va., a large producer of ore, coal, pig iron, Bessemer steel, steel pipe and tin plate, states that in his opinion the Government prices on steel while lower on several items than expected are in the main, fair and acceptable to the steel industry. The prices named will allow the self-contained steel mills to realize good profits, and place them in position to contribute in the form of excess profits a good part of the expense of the Government in prosecuting the war. The knowledge that Government prices would be very much lower than the premium prices obtaining for so long has been in possession of the steel trade for a long time, and the prices named have been largely discounted for some weeks in the stock market. The prices should really prove a strong factor in sustaining stock values, and are not to be regarded in any way as a bear argument.

W. S. Horner, president National Association of Sheet and Tin Plate Manufacturers, Oliver Building, Pittsburgh, and director of the American Rolling Mill Co., Middletown, Ohio, gives his views as follows: "The statement from Judge Gary given out on Monday evening reflects my views on these prices, which I believe to be eminently fair to the pig iron and steel producers, also to the Government, its Allies and domestic consumers as well. The pledge of the manufacturers that wages will not be disturbed and the highest possible maximum output be secured shows clearly the absolutely friendly relations existing between the steel trade and the Government. It bespeaks for the Government the strong support the steel trade can give it in the matter of turning out war steel, best delivery and the closest co-operation that can be given. The new prices are bound to stabilize the steel business and place it on a safe basis."

Views from Chicago

CHICAGO, Sept. 25.—The steel industry is to-day in a chaotic state. Men everywhere are giving voice to conjecture, doubt and divergent views in their effort to absorb the full import of the news on price fixing from Washington. Local mills have wired their branch offices not to quote on plates, shapes and bars, although the action was not based on any intention of immediate revision of prices, but on uncertainty. Branch offices of Eastern mills are anxiously awaiting advices from headquarters. Meanwhile they will not sell. Sales managers are being deluged with questions, many from consumers wanting to know about the operation of contracts under the new regime. Although it has been many times stated that the new prices are for the general public, as well as for the Government and its allies, the statement is not unanimously accepted and will not be until the official text is received. It was noted by some that telegraphic reports said the new prices should be made to private consumers not that they shall be made, it being pointed out that the imperative was not used. It is asserted that self-contained mills can do well at the new prices, and it is a fact that representatives of the larger interests are not finding fault. The representative of a mill which buys its pig iron, large quantities of scrap, etc., said:

"We would not complain if the new prices were for the Government and its allies, even in view of another wage advance, but how is it fair to us who must enter the open market and buy pig iron while other companies control both ore and iron? The mills owning ore have an advantage because they can keep wages up. They have a profit before we can start. In dull times

the smaller mill has the advantage because it can pick up cheap iron and scrap here and there and does not have the big overhead of the larger mill to carry. We will not quote pending some clearing of conditions."

The executive of a large independent mill said: "From the point of view of the self-contained steel company the price is fair to the Government. Of course these prices would mean a much lower yield, yet we would be satisfied if we could operate at their levels indefinitely, provided costs do not advance much beyond their present levels. On Oct. 1 we shall advance wages 10 per cent."

Arguing that if the new prices were for the Government and its Allies alone, the public would suffer, a steel man pointed out that it was not the purpose of the Government to inflict hardship on the private consumer, but to help him with the low rate applying to the Governments.

New Prices for Best Interests of All

The representative of a manufacturer using large quantities of steel took an optimistic view as follows: "In the long run the new prices will be in the best interests of the steel manufacturers as well as all buyers, as steel prices were getting to a point which inflicted a great hardship to various leading industries. If the rise had not been stopped, it would have eventually brought disaster through the collapse of the entire manufacturing activity. Lower prices mean additional activity for the implement manufacturers, car builders and various other industries. The building trade can now afford to buy freely. Incidentally, 'I do not believe,' he said, 'the mills are so completely sold up as has been intimated. The railroads have been unable to buy cars, but they can do so at the new prices. In individual cases the new figures will work some hardship, but it is to be remembered that policies must not be fixed for temporary effect but for ultimate results. The prices fixed are to my mind fair to producer and consumer and if not mandatory will do more harm than good. The crux of the situation is that the United States is at war and every individual must govern himself accordingly. Sacrifices for the common good must be made. Prices of commodities other than those named I believe will work out automatically. If pig iron is low, scrap will adjust itself. Of course those who are loaded up with scrap will suffer. So far as possible contracts should be readjusted. I believe the Administration has handled the situation in admirable fashion by beginning at the foundation. For the moment there is no business in highly finished products.'"

Implement Makers' Views in the Making

In the absence of the executive chairman of the National Implement and Vehicle Association, General Manager E. W. McCullough did not care to talk at length in view of the questions yet to be settled. The executive chairman has been in Washington and will reach Chicago Sept. 27. There is some question whether the price fixing will materially help the implement manufacturers, one reason being that most of them are covered for the remainder of the year, another being that it may make deliveries more difficult to procure and deliveries are regarded as more important than price. Many industries which have been practically out of the market will seek bars. Mr. McCullough said that the implement makers would come in Class B, designated by the War Industries Board to include industries indirectly related to the war and as such entitled to some preference. He said the 2.90c. base was of course more attractive than what they had been paying.

A company making rail carbon steel bars and shapes states that it already has refused to make any changes in its contracts and will await developments before making further quotations.

Prices Not Yet Regarded as Maximum

An executive of a large local mill said the prices had been fixed on certain basic products and that inasmuch as Judge Gary has said the prices are fair, they should be so considered. He believed the ultimate

working out of the agreement would be beneficial to the small mills doing a finishing business. Deliveries will continue to determine prices, where products are difficult to procure. A man wanting sheets, for instance, will pay the asking price if he must have them.

Warehouse Prices

A representative of Joseph T. Ryerson & Son stated that his company was waiting for definite information. Business was good, but their stocks were not up to normal, nearly all sizes being badly broken.

A representative of A. M. Castle & Co. said that in his opinion the jobbing warehouses would continue to get material where, when and at what price they could, acting as clearing houses for the trade. To keep their stock at its allowable minimum level they had been compelled to pay bonus prices and to get material from all sources including other warehouses. Their prices to the consumer are predicated on what they themselves paid and their interpretation of the new prices is that they apply to the mills. The company's contracts will be filled on the original basis for the reason that the material involved has been bought and it is coming forward. With the mills filled with orders for months to come it does not appear that the public will derive immediate benefit from the new prices, at least that portion of the public which buys in small lots.

No pig iron was sold to-day. From the representative of the leading producer, no statement was forthcoming. Many consumers of iron wanted to know where they stood with regard to their contracts, also if contracts for castings based on pig-iron prices would be affected. The general belief was that contracts would be subject to no change. So many ramifications presented themselves that sellers decided merely to sit tight and await further information. The agent of the leading Southern producer was informed that his company had no iron to sell, which can be interpreted to mean they also were waiting. It was admitted that any attempt to revise contracts would result in a mass of confusion. Yet most of the iron people asserted that once the plan gets working, it will be a good thing.

In scrap there is no market, all prices having been shattered, and prominent dealers said there must be a complete readjustment. It is not expected that contracts will be changed, although there may be some annulments through subterfuge of rejection. It is believed the mills will agree on a reasonable price, probably about \$25 in the East and \$22 in the West for melting steel. Unless the price is made reasonable, scrap will not come out. All prices of a week ago were held to, though considered strictly nominal, this applying to iron and steel, both from first hands and jobbers.

Co-operative Regulation with Government Approval

CLEVELAND, Sept. 25.—Chairman John A. Topping of the Republic Iron & Steel Co., who is in Cleveland to-day, made the following expression: "The steel settlement as I see it will have a wholesome effect on the steel business because the principle of co-operative regulation has been established with Government approval. Of course, present abnormal profits will be substantially reduced but a runaway market condition has been prevented and prosperity extended. Furthermore, stability in future values should be conserved by providing a basis for orderly liquidation for the post-war period."

Superior Steel Corporation Earnings

The Superior Steel Corporation, Union Arcade Building, Pittsburgh, works at Carnegie, Pa., has declared an initial dividend of \$1.50 quarterly on the common stock, payable Nov. 1. Earnings for seven months to Aug. 31, averaged better than \$250,000 monthly. Orders ahead fully justify the belief that for last five months of year they will exceed this figure. Company's cash position is strong and raw materials are contracted for at favorable prices. Dividends of \$8 per annum are being paid on first and second preferred stocks and in addition the company has retired about \$1,000,000 of the preferred stocks this year out of earnings. It is known several directors favor a distribution on the common at this time.

RECORD-BREAKING WAGES

Steady Upward Trend in the Youngstown District Mills

YOUNGSTOWN, OHIO, Sept. 24.—Rollers are now earning on an average about \$700 a month and correspondingly high wages are paid to all of the other iron and steel mill workers. The puddlers are earning \$13.30 a ton, and it is recalled that the prevailing rate for boiling was as low as \$3.50 a ton in Pittsburgh and the Mahoning Valley in 1893.

One of the good signs during these prosperous times is that the steel workers, sheet mill men and puddlers are saving their money, placing their cash allowance over and above living expenses in the sound savings banks of this city, buying good gilt-edged Government bonds and purchasing homes. Many a mortgage has been burned during the past two years and homesteads released from debt.

While iron and steel workers agree that wages are good—higher within the past two years than ever before in the history of the trade in America—yet they point to the lean years and low wages that came regularly at intervals before 1914. From 1893 to 1899, times were backward throughout the country and mill work was poor in the Mahoning Valley. Then came such consolidations as the Republic Iron & Steel Co., and later the United States Steel Corporation. In the autumn of 1900, the Youngstown Sheet & Tube Co. was incorporated. From that time on, the steel trade has not had such violent changes. Only two bad strikes in the sheet industry within the past decade have occurred to mar this record.

When the European war broke out, steel manufacturers turned to the manufacture of shrapnel bar. Steel billets used in ammunition making brought a high price at the mills. This making of steel into ammunition caused a shortage for the manufactured product and sheet and tinplate plants suffered, many being closed down at intervals. To help the situation, about three years ago sheet and tinplate workers took a reduction amounting to about 14 per cent, so as to keep the mills going.

Bi-Monthly Examinations

However, for the past two years, business in these departments has been good. Much of the prosperity of the men is due to the bi-monthly examinations of the sales sheets of the big mills, which provide a schedule of wages based on the selling price of bar iron, steel sheets and tinplate. This plan was first inaugurated many years ago to give iron and steel workers the benefit of a rising market; also to adjust wages in a declining market, this being considered the most equitable basis on which to fix a just compensation for the toilers, as well as protecting the mill owners.

The present princely wages of sheet and tinplate workers, which have risen more than 32 per cent within the past three months, are caused by the demand for sheet steel and tinplate, due largely to America's plunge into the war requiring the building of ships and cantonments, increasing the manufacture of auto trucks and supplying cooking utensils for the military camps.

When the existing wage scale of the Amalgamated Association of Iron Steel and Tin Workers with the manufacturers was agreed upon, the base rate for sheets in the market was fixed at \$2.15 a hundred pounds. With tinplate, \$3.50 for a box of 100 lb. was the base. The base rate for the bar iron scale was a 1c. card. The reason for the wage advances can be clearly understood with August 30, 1917, examination showing that bar iron was selling on a 2.75c card; on Sept. 10, steel sheets were selling on an average 5c. card, and tinplate was selling at \$7.75 a box of 100 lb.

The following compilation shows how the wages of sheet and tinplate workers and puddlers have advanced under the 60 days settlements through 1916 and 1917:

Jan. 14, 1916, sheet workers received advance of 2 per cent; no change in the wages of tinplate workers.

Puddlers wages were based on a 1.40c card which entitled them to \$6.90 a ton during January and February of that year.

The next settlement, in March, gave sheet workers an advance of five points, or 7½ per cent, and tinplate workers 3 per cent. Bar iron was selling on a 1.85c. card, which entitled puddlers to \$8.80 a ton.

On May 10, 1916, sheet workers received an advance of 7½ per cent and tinplate workers none. The wages of puddlers increased to \$9.30 on a card of 1.95c.

In July of the same year, the next examination gave sheet workers 6 per cent advance, while tinplate workers received 8 per cent. Sept. 10, the examination gave sheet mill workers an increase of two points and tinplate workers 3 per cent. Puddlers' wages advanced to \$9.55 a ton on a 2c. card.

Nov. 10, 1916, sheet mill workers received an increase of 1 per cent. Tinplate workers got the same wage concession.

More Increases Come

At the examination held Jan. 10, 1917, sheet workers' wages were advanced one point and tinplate workers' 3 per cent. The wages of puddlers advanced 75 cents a ton, on a 2.15c. card.

At the following examination March 10, the wages of sheet mill workers jumped 15 per cent and tinplate workers about 14 per cent. Wages of puddlers advanced about \$1 a ton, on a 2.35c. card.

It developed in the examination of May 10, 1917, that sheet workers were entitled to an increase of 15 per cent and tinplate workers to about 16 per cent. At the following examination July 10, sheet mill workers drew an increase of 16½ per cent and tinplate workers 22 per cent. The wages of puddlers advanced to \$12.30 a ton.

At the August, 1917, examination puddlers' wages advanced to \$13.30 a ton, on a 2.75c. card. Tinplate workers received Sept. 10 another increase of 16 per cent and sheet workers 16½ per cent. Wages of sheet mill workers were found to be 89 per cent above the base at the close of the September examination.

During the Civil war when iron was selling as high as \$168 a ton, puddlers received for a few months from \$8 to \$9 a ton. It was not until May, 1916, that this rate was exceeded by puddlers of the present day. Iron workers of long ago recall that the nailors, the men who ground and took care of the knives in the nail machines, where cut nail factories were maintained, were considered the proud princes of the trade in their day. Nailors received as high as \$18 and \$20 a day. Then came the guide mill rollers in charge of two and three mills, earning from \$50 to \$60 a day at a period when money counted for much more than to-day. In the eighties there came a strike which did away with the two-job system and then the rollers had their earnings reduced correspondingly.

News of the Labor World

A special bulletin has been issued by the Industrial Commission of Wisconsin to employers of the State, which calls attention to the fact that poor shop lighting is one of the principal causes of accidents and results in much waste and inefficiency. The bulletin gives shop superintendents information regarding good lighting at minimum expense, and urges that adequate natural light be provided to avoid use of artificial illumination during the day-time.

Riveters at the plant of the American Bridge Co., Edge Moor, Md., have received an increase of four cents per hour.

The Pennsylvania & Reading Railroad has advanced the wages of shop employees at its Rutherford, Pa., shops two cents an hour; piece work men at the shops will receive an increase of 6 per cent on earnings.

The Philadelphia & Reading Railroad has advanced the wages of employees at its Reading, Pa., shops from one to three cents an hour. About 3000 men are affected.

The Pennsylvania Railroad is now employing a number of women at its shops at Todd's Cut, near Wilmington, Del., as machinists' helpers. The local plants of the Pullman Co. and the Eastern Malleable Iron Co., in the same district, are also engaging women for shop work formerly handled by men. At both

plants the women are being trained to execute the lighter branches of work in the machine shops. The du Pont Powder Co. has arranged for the employment of more than 200 women at its Carney's Point plant.

The Aluminum Goods Mfg. Co., Manitowoc and Two Rivers, Wis., and Newark, N. J., has posted notices in its three plants that the company will continue in force the policies of all employees who may be called to serve in the new National army, which were presented to them last April, under the group insurance plan. The company will continue to pay the premiums and in case of misfortune, the full amount of the policy will be paid to the specified beneficiary.

The Aluminum Castings Co., Manitowoc, Wis., has filled the depleted ranks of its foundry force with girls and young women, about 25 of whom now are employed at core-making.

About 75 of the 100 machinists employed by the P. H. and F. M. Roots blower works, Connersville, Ind., went on strike, Sept. 17, after waiting two weeks for a 10 per cent increase in wages. The company is holding conferences with its former employees.

The General Fire Extinguisher Co., Providence, R. I., has taken out group insurance for about 1400 employees. The employees will be covered for \$500 each after six months' service, \$600 after the first year, and \$100 additional each year thereafter.

The strike of puddlers at the plant of the Reading Iron Co. has recently been settled by advancing the wages from \$9.75 to \$11 per ton. When the men went on strike they demanded \$11.50 per ton and later increased this to \$12 per ton.

The John Wood Mfg. Co., Conshohocken, Pa., has voluntarily advanced the wages of employees about 10 per cent, to extend over a period of six months.

The E. I. du Pont de Nemours Co. has increased the wages of all employees at its Gibbstown, N. J., plant 10 per cent. This is the third advance in wages at the works in two years, besides a special bonus allotment.

About 300 employees of the Morse Chain Co., Ithaca, N. Y., declared a strike, Sept. 18, with demand for higher wages.

Chrome Ore Shipments from California

There has been considerable activity in the production of chrome ore in the West ever since the war started, California being the largest producer. Oregon and Wyoming have mined small amounts, with a small production coming also from Canada and Maryland. The most accessible California fields were worked in 1915 to nearly their fullest extent, and 1916 practically exhausted all the easily accessible chrome deposits in that State. This year, however, some other deposits have been opened up, notably those in Del Norte county, which have been recognized for some time to be the largest deposits in the State. It is a difficult matter to transport the ore there by trucks or teams to seaboard, the port being Crescent City, which has no rail connections. The ore must be hauled down from this port to San Francisco and then by rail to the Eastern consumers and the mining, hauling and transportation is a serious problem. R. D. Adams of San Francisco is working the Del Norte chrome deposits and it is estimated that there are at least 7000 tons of this valuable ore in the deposits, which will be shipped out this year.

The McLain Carter Furnace Co., Milwaukee, has been organized by David McLain, 705 Goldsmith Building, Milwaukee, inventor of the McLain system of manufacturing semi-steel. The capital stock of the new company is \$5,000, and the objects are to design, construct and market open-hearth furnaces and other melting devices and appliances. Frank Carter, Fred G. Schmidt and Earl F. Rosendahl appear as incorporators with Mr. McLain, who has been engaged in the practice of foundry engineering for several years.

OBITUARY



G. BURTON HALL

headquarters at Chicago. The interment was in Springfield, Mass.

RUSSELL DALE, for the past five years manager of sales of the Rich Tool Co., Chicago, died Sept. 22 from the effects of a bullet wound inflicted by a negro employee of a garage in Chicago. Mr. Dale had occasion to reprove the negro who, without warning, got a revolver and fired. Prior to being connected with the Rich Tool Co., Mr. Dale was Chicago manager for the Carpenter Steel Co. He was 43 years old, and leaves a wife and one daughter.

RICHARD BIEFELD, vice-president Otto Biefeld Co., Watertown, Wis., and for more than 25 years prominent in the structural iron and boiler manufacturing industry of the Northwest, died Sept. 14 after a long illness. He was born in Saxony, Germany, on Aug. 16, 1859, and went to Watertown with his brother, Otto, in 1882, in which year the present Biefeld shops were established.

JOHN W. STODDARD, 79 years, a lifetime resident of Dayton, Ohio, died at his home in that city Sept. 18. He was president of the Dayton Automobile Co. until the time of its absorption by the Maxwell Motor Car Co. At one time he was also president of the American Stoker Co., Dayton, and at the time of his death he was a director in several prominent Ohio manufacturing firms.

WILLIAM WALLACE MELVIN, 76 years old, a resident of Brooklyn, N. Y., for 45 years, died Sept. 16 of heart failure at his home in that city. Mr. Melvin was born in Elizabeth, N. J., and was for 51 years connected with the sales department of the New Jersey Zinc Co.

A Patriotic Company

All of the officials of Coleman-Shoemaker-Mead, Inc., Philadelphia, dealer in new and rebuilt machinery, and five other important men have voluntarily entered the service of the United States and the company will suspend its business after its present stock of machinery has been disposed of. In addition to the general machinery business carried on by the company, it is district representative of the Ames Iron Works, which will carry on its business in the office now used by Coleman-Shoemaker-Mead, Inc., until the end of hostilities, at which time it is the intention of the Ames Iron Works to have its present representative resume that relation. The shop at Tacony, Pa., will also be closed. The men who have gone into the service are as follows: R. F. Coleman, president, first lieutenant, Ordnance Department; F. F. Shoemaker, vice-president, United States Naval Reserves; C. S. Groove, 3rd, captain, U. S. Marines; Leonard Tissot, quartermaster, U. S. Naval Reserve; Rudolph Leibic, U. S. Naval Reserves; R. M. Harper, machinery inspector, U. S. Naval Shipping Board; Paul Tiers, Medical Corps, Naval Reserves.

SALES CONTRACTS AND THE LAW

Rights of Buyers and Sellers Are Determined by Courts

BY A. L. H. STREET

Duty of Rescinding Buyer.—A purchaser of machinery is not entitled to cancel his purchase on the ground of fraudulent representations made by the seller's representative, unless he returns or offers to return the machinery at the place where it was delivered to him by the seller. (Kansas Supreme Court, June 9, 1917. Aultman & Taylor Machinery Co. vs. Schierkolk. 165 Pacific Reporter, 854.)

Actionable Character of Machinery Seller's Representations.—The seller of machinery under warranty as to its condition or efficiency is liable in damages for a breach of the warranty, regardless of the fact that the statements in question may have been made in good faith. A representation by a manufacturer that a machine when equipped with certain attachments will develop certain power is actionable, if untrue, it not being regarded as a mere expression of opinion. (Minnesota Supreme Court, June 29, 1917. Helvetia Copper Co. vs. Hart-Parr Co. 163 Northwestern Reporter, 665.)

Buyer's Remedy Against Defect in Machinery.—A buyer of machinery by retaining and using it, after learning of defects in it, waived any right to rescind his purchase when later sued for the price. His only remedy was a counterclaim for the amount necessary to so repair the machinery as to make it conform to the condition it was represented as being in at the time of the sale. (Mississippi Supreme Court, May 14, 1917. Alig vs. Lackey. 75 Southern Reporter, 139.)

Phases of Machinery Warranties.—The fact that a buyer of machinery has signed a memorandum indicating satisfaction with machinery delivered to him is not conclusive against him on the question whether the machinery was in the condition represented by the seller, the memorandum being merely evidence to be weighed against the buyer in case of controversy. Failure of the buyer of a machine to give notice in writing within ten days of discovery of a defect, as required by the contract of sale, does not preclude him from rescinding his purchase on account of defects of which the seller had actual notice. But under a contract calling for a sale of two machines, and expressly stating that the agreement shall be divisible as to each, failure of one to come up to the warranty under which it was sold does not entitle the buyer to cancel as to both, if the other does conform to the warranty and can be used without the defective one. (Washington Supreme Court, June 4, 1917. J. I. Case Threshing Machine Co. vs. Scott. 165 Pacific Reporter, 485.)

Implied Warranties of Fitness of Things for Buyer's Intended Use.—Where a seller of articles, acting at the request of the buyer, undertakes to furnish goods suited to particular use, there is an implied warranty by the seller that the goods will be reasonably well adapted to that use. But where the articles are merely sold by description, without any view to the buyer's intended use of them for any particular purpose, the seller is not liable for any failure of the goods to prove suited to the buyer's needs, if they conform to such description. Hence, if plaintiffs, desiring tubing to be used in a certain oil well, relied upon the judgment of the defendant, as seller, that certain tubing should be used and bought the necessary quantity, failure of the tubing to prove to be appropriate for the intended use gives the buyer a valid claim against the seller. And if the contract called for tubing of certain material and weight, but tubing of lighter weight and inferior quality was furnished by the seller and innocently used by the buyer, resulting in destruction of the well through breaking of the tubing, the seller is liable for the resulting loss. (West Virginia Supreme Court of Appeals, May 23, 1917. Schaffner vs. National Supply Co. 92 Southeastern Reporter, 580.) So the seller of a water pump impliedly warrants that it is reasonably well adapted to the purpose of pumping water, but a warranty that a pump would lift 500 gallons of water each minute from a well was not

broken where failure to attain that capacity was due to abnormal conditions and the filling of the well with loose sand which disturbed operation of the pump. (California Supreme Court, May 16, 1917. Smith-Booth-Usher Co. vs. Los Angeles Ice & Cold Storage Co. 165 Pacific Reporter, 430.)

Contracting Parties Must Agree on Terms of Payment.—There was no enforceable contract for a sale of aluminum bars under verbal negotiations, subject to confirmation by letters, where the letters differed on the point as to whether payment was to be made in cash or through sight draft. (New York Supreme Court, Appellate Term, May 29, 1917. Harris vs. Walker M. Levett Co. 165 New York Supplement, 317.)

Oral Modification of Written Contracts.—A written contract for sale of drill presses, to be delivered May 1, was subject to modification by a later verbal agreement under which the time for delivery was extended to May 10 in consideration of a two per cent deduction from the price originally agreed upon. (New York Supreme Court, Appellate Division, May 4, 1917. Ballard vs. Friedeberg. 164 New York Supplement, 912.)

Validity of Payment to Seller's Agent.—Even if a sales agent was not authorized under his arrangements with his principal to collect for goods sold by him, omission of the principal to object to expressed intention by a customer to make payment to an agent precluded the principal from afterward denying the agent's authority in this respect as against the customer. (California District Court of Appeal, April 3, 1917. Fred Medart Manufacturing Co. vs. Weary & Alford Co. 165 Pacific Reporter, 35.)

Salesman's Authority to Close Contract.—If a manufacturing company, after initiating negotiations to sell iron work to a customer, wrote the latter that it was sending a salesman to call upon him, the company impliedly held the salesman out as being authorized to make a binding contract of sale. (Arkansas Supreme Court, March 26, 1917. Chattanooga Roofing & Foundry Co. vs. Porter. 193 Southwestern Reporter, 797.)

Verbal Explanation of Written Contracts.—Although a written contract for a sale of machinery or other personal property cannot be contradicted as to its plain terms by showing some oral negotiations at variance with such terms, it is always permissible to explain ambiguities in written instruments. Hence, under a written contract for a sale of a "boiler and attachments thereto," oral statements will be received by a court to show what things were intended to be sold under the designation, "attachments." (Georgia Court of Appeals, June 18, 1917. Strickland vs. McElveen. 93 Southeastern Reporter, 24.)

Acceptance of Pipe Sold—Rights of Non-Resident Corporations.—Under a contract for a sale of pipe to be used by a city for waterworks purposes, with provision for testing the pipe to the satisfaction of the water commissioner after being laid, final acceptance of the material by the city cannot be based upon the fact that a representative of the city tested the pipe while it was in the process of manufacture. The statutes of Missouri, which forbid non-resident corporations to do business in the State without first obtaining a license to do so, do not apply to a company having no place of business in the State and merely filling a contract for sale of goods to be shipped into the State, where the contract is fulfilled by loading on cars in another State goods conforming to the agreement. (Missouri Supreme Court, June 30, 1917. City of St. Louis vs. Parker Washington Co. 196 Southwestern Reporter, 767.)

Damages for Refusing to Receive Goods.—Where on a buyer's refusal to receive goods bargained for, the seller is able to dispose of them at once in the market, he cannot hold the buyer liable for enhanced damages resulting from a decline in market values. But, regardless of actual damage, a seller is always entitled to recover at least nominal damages for the buyer's unjustified refusal to accept delivery. (Massachusetts Supreme Judicial Court, June 29, 1917. Centennial Electric Co. vs. Morse. 116 Northeastern Reporter, 901.)

Machinery Markets and News of the Works

SHIPBUILDERS ARE BUYING

Fore River Plant to Be Greatly Enlarged

Chester and Merchant Companies to Purchase Punch-Shop Equipment—\$600,000 Tool Order Placed in Chicago Market

Buying of machinery and machine tools for Government work took another spurt in the past week with the issuing of a list of requirements for a complete new shipbuilding plant to be built by the Fore River Shipbuilding Corporation adjoining its present yard at Quincy, Mass., where torpedo boat destroyers will be built for the United States Navy. The inquiry covers 300 or more machine tools, plate-working machines, hydraulic machines, etc., which will cost about \$1,000,000. Another list will follow covering the crane requirements. It is said that 54 cranes, including a good many of the I-beam type for hoists, will be purchased.

Another interesting development of the week was the placing of a blanket order with the Chicago office of Manning, Maxwell & Moore, Inc., by the Minneapolis Steel & Machinery Co., Minneapolis, Minn., which will require about \$600,000 worth of machine tools to take care of large shell contracts.

The Chester Shipbuilding Co., Chester, Pa., and the Merchant Shipbuilding Corporation, Bristol, Pa., have issued lists of punch-shop machines, the former list covering 30 machines and the latter 60. Bids have already been taken and orders will be placed soon.

The American International Corporation has opened a temporary purchasing office in the Bellevue-Stratford Hotel, Philadelphia, and will, it is understood, soon place orders for cranes and punch-shop machinery for its shipyard at Hog Island. The Lackawanna Bridge Co., 2 Rector Street, New York, will buy equipment for the plant which it will establish on the Newark Meadows in co-operation with the Submarine Boat Corporation.

The Federal Shipbuilding Co. will issue additional lists soon, covering further requirements, including cranes and machine tools. The Lake Torpedo Boat Co., Bridgeport, Conn., is buying for the Housatonic Shipbuilding Co., Bridgeport, in which Simon Lake, the submarine builder, is interested.

Other shipbuilding purchases are expected as a result of the plan of the Navy Department to provide for expansion of present shipbuilding facilities to take care of the construction of 150 torpedo boat destroyers.

The orders placed by the J. G. White Engineering Corporation, New York, are said to have totalled 736 machine tools, all of which will be shipped to the Brasier and Renault automobile factories in France, there to be used on airplane engine work for the United States Government. Italian airplane engine factories are expected to be in the market soon for tools.

Edoardo Fucito, an engineer, Hotel Seville, New York, will buy eight grinders for shipment to an Italian airplane engine works.

Buying on the lists recently issued by the General Vehicle Co., Long Island City, N. Y., and the Simplex Automobile Co., New Brunswick, N. J., is still pending.

The Lincoln Motor Co., operated by Henry M. Leland and son, and the Packard Motor Car Co., both of Detroit, have placed orders aggregating \$200,000 in the Cleveland market. Among their purchases were 50 multiple spindle drilling machines.

New shell contracts have been given out recently by the Government. In addition to large contracts received by the Minneapolis Steel & Machinery Co., as mentioned above, the American Shell Co., Paterson, N. J., and the American Clay Machinery Co., Bucyrus, Ohio, have received contracts. The American Shell Co., which has taken over the shell department of the East Jersey Pipe Corporation, will, it is understood, make 2,000,000 shells and will work three 8-hr. shifts per day. Some new equipment may be bought.

The Pennsylvania Railroad Co., Philadelphia, is continuing its buying for a locomotive shop for the Government in France.

The Eisemann Magneto Co., Brooklyn, is in the market for machine tools. The Safety Car Heating & Lighting Co. is buying for its Jersey City plant, where electric axle lights for railroad cars are manufactured.

Mitsubishi Goshi Kaishi, 120 Broadway, New York, will purchase equipment for steel plants in Japan, where shipbuilding companies are planning to roll their own plates and shapes instead of depending upon a supply from the United States, from which they are now cut off by embargo.

The Erie Forge Co., American Brake Shoe & Foundry Co. and the Westinghouse Electric & Mfg. Co. have bought tools in the Cleveland market in the past week. Manufacturers of aluminum products in Cleveland vicinity have received inquiries from the Government for 1,000,000 to 2,000,000 aluminum army canteens. The Kelly-Springfield Truck Co., Springfield, Ohio, has received a contract from the Army Signal Corps for 3000 chasses at an aggregate cost of nearly \$4,000,000.

The Poole Engineering & Machine Co., Baltimore, Md., has bought six cranes of 10 to 30-ton capacity from the Shaw Electric Crane Co. for its gun-machining plant. Walter Scott & Co., Plainfield, N. J., who have a gun carriage contract, have bought two 10-ton cranes. The Stone & Webster Engineering Corporation has placed an order for five cranes for the Watertown Arsenal and has also bought a 90-ton traveling crane for the Philadelphia Electric Co. The Penn Seaboard Steel Corporation, Chester, Pa., will buy four 30-ton cranes and the General Electric Co. will buy several smaller cranes for various shops and a 75-ton crane for export to Russia.

New York

New York, Sept. 25.

Inquiries covering equipment for a complete new ship-building plant to be built by the Fore River Shipbuilding Corporation adjacent to its present plant at Quincy, Mass., and to be used for the construction of torpedo boat destroyers for the United States Navy, have been sent out. Cranes, plate-working machinery, hydraulic machinery and probably 300 or more machine tools will be required. The crane list, it is understood, will cover about 54 cranes of various types, many of which are to be small I-beams with hoists. Purchases to be made will total \$1,000,000 or more. In view of the plans of the Navy Department to build about 150 destroyers, and the necessity for expansion of present shipbuilding facilities to take care of this work, it is expected that other shipbuilding companies may come into the market soon for large requirements.

The Chester Shipbuilding Company, with plant at Chester, Pa., and the Merchant Shipbuilding Corporation, with plant at Bristol, Pa., are both in the market for punch-shop machinery. The Chester list covers about 30 machines and the Merchant list contains 60. Bids on the former closed on Sept. 22 and on the latter will close Sept. 26.

The American International Corporation, 120 Broadway, has opened a temporary purchasing office in the Bellevue-Stratford Hotel, Philadelphia, and will, it is understood, soon place orders for cranes and punch-shop machinery. Boom-type cranes or derricks will be used for the shipways. The Lackawanna Bridge Co., 2 Rector Street, will purchase equipment for the shipbuilding plant which it will build on the Newark Meadows in co-operation with the Submarine Boat Corporation.

The Federal Shipbuilding Co., 54 Dey Street, New York, has not yet issued lists of additional requirements, including cranes and machine tools. The Lake Torpedo Boat Co., Bridgeport, Conn., is making purchases for the Housatonic Shipbuilding Co., same city, in which Simon Lake, the submarine boat builder, is interested.

Orders placed by the J. G. White Engineering Corporation, New York, for airplane work in France are said to have been as follows: 126 grinders, 194 lathes, 60 turret lathes, 97 milling machines, 45 automatic lathes, 17 boring mills, 2 tool grinders, 885 drill presses, 57 gear cutters, 53 miscellaneous tools—a total of 736. These tools are going into the plants of the Brasier Automobile Co. and the Renault Automobile Co. instead of into a new plant, which it was at first understood would be built in France for the United States Government, and will be used for building and repairing American airplane engines. There have been "feelers" put out during the past week by airplane engine makers in Italy, who will probably require a large number of machine tools for expansion of that country's airplane-building program. Edoardo Fucito, engineer, Hotel Seville, New York, is in the market for eight grinders, which are to be shipped to an airplane engine factory in Italy. The General Vehicle Co. and Simplex Automobile Co. lists for airplane engine work are still pending. A complete reorganization of the executive force of the Simplex Automobile Co. is said to have delayed purchasing by that company.

The American Shell Co., which has taken over the shell department of the East Jersey Pipe Corporation, Paterson, N. J., has received a Government contract for about 2,000,000 shells and will work three 8-hr. shifts. Some new equipment will probably be bought.

The Pennsylvania Railroad Co., Philadelphia, is still placing orders for equipment for the Government locomotive shop to be erected in France.

The Eisemann Magneto Co., Brooklyn, has taken increased floor space in the Bush Terminal and is in the market for machine tools. The Safety Car Heating & Lighting Co., New York, is buying for its plant in Jersey City, where an electric axle light for railroad cars is manufactured.

Some of the smaller machine tools are in better supply and in a few instances can be delivered from stock. This is true especially of certain makes of lathes up to 24 in. There is still a pronounced scarcity of all large tools and among the smaller tools radial drills, milling machines and drill presses of standard makes are not to be had for early delivery. Grinders, which until recently could be had in two or three months, are now four or five months off.

Purchases of steel-making equipment for use in Japan will be made in this country. Shipbuilding interests in that country are planning to make their own steel and roll their plates and shapes instead of depending on the United States, which now has an embargo against shipment of plates. Mitsubishi Goshi Kaishi, 120 Broadway, New York, expects to buy rolling mill equipment, cranes, etc.

It is reported that the United States Government may soon make large purchases of locomotive and gantry type

cranes for terminal facilities on the Atlantic seaboard. Crane business is exceedingly active. Several good-sized crane contracts have been closed during the past week. The Poole Engineering & Machine Co., Baltimore, bought three 16-ton, two 15-ton and one 30-ton overhead electric shop cranes from the Shaw Electric Crane Co. for use in machining heavy guns for the United States Navy. Walter Scott & Co., Plainfield, N. J., who have a contract for gun carriages, have bought two 10-ton cranes from the Milwaukee Electric Crane & Mfg. Co. The Milwaukee company has also received an order from the Stone & Webster Engineering Corporation for five 10 and 20-ton cranes for the Watertown Arsenal. Three other cranes of 30 and 40-ton capacity are still to be bought. Bids were closed recently. The Stone & Webster Engineering Corporation has also bought one 6-motor 90-ton electric traveling crane for the Philadelphia Electric Co., Philadelphia. The American Smelting & Refining Co. has placed an order for a 1½ cu. yd. grab bucket crane for use at Omaha, Neb. The General Electric Co. will buy several small cranes for Schenectady, West Lynn and Pittsfield plants and a 75-ton crane for export to Russia. The Penn Seaboard Steel Corporation, Chester, Pa., will buy four 30-ton cranes and steel-making equipment.

The Hollingsworth Wheel Co., Hagerstown, Md., is in the market for a machine to roll or cut threads 1 in. long on bolts or rods ¼ in. in diameter.

The New York Air Brake Co., Pearl Street, Watertown, N. Y., is planning for changes in machinery and equipment at its Beebe Island plant for the manufacture of fuses of the French type. Heretofore the works have been used for the production of fuses of English type.

The Canisteo Iron Works, Canisteo, N. Y., has been incorporated with a capital of \$15,000 to operate a foundry and metal-working plant. H. M. Baker and M. R. and O. M. Auerbach are the incorporators.

The Covert Gear Co., Buffalo, has increased its capital from \$1,000,000 to \$1,500,000.

The Lake Shipbuilding Co., Ganson Street, Buffalo, has increased its capital from \$63,000 to \$160,000.

The American Ammunition Co., Paulsboro, N. J., has awarded a contract for the erection of a new three-story plant to cost about \$25,000. The main office is at 25 Broad Street, New York.

The Standard Fuse Corporation, Paulsboro, N. J., manufacturer of airplane parts, cannon primers, etc., is having plans prepared for the erection of additions to its plant. The company reopened its works September 20, which had been closed since April.

The Pennsylvania Shipbuilding Co., Gloucester City, N. J., is having plans prepared for the erection of several one-story shop buildings in connection with its new shipbuilding plant. The entire works are estimated to cost about \$1,000,000. George F. Pawling & Co., 1438 South Penn Square, Philadelphia, are engineers.

The Lund & Weiss Co., East Orange, N. J., has been incorporated with a capital of \$10,000 to manufacture motors. Edward P. Lund, Arthur J. Weiss and Frank Tunstead, East Orange, are the incorporators.

The A. P. Smith Mfg. Co., Norman Street, East Orange, manufacturer of waterworks machinery, will build a one-story addition to its plant.

The Crocker-Wheeler Co., Ampere, East Orange, manufacturer of electrical machinery, will erect a one-story addition to its plant to cost about \$10,000. It will also build a new one-story structure at 485 Fourth Avenue, Newark, to cost \$20,000.

The Goldschmidt Thermit Co., Jersey City, N. J., manufacturer of welding apparatus, will build a one-story extension to its plant on Johnston Avenue.

The Federal Iron & Metal Co., Jersey City, has been incorporated with a capital of \$1,000,000. David A. Newton, 243 Washington Street; Edward A. Wardley and Charles W. Broadhurst are the incorporators.

The Davis-Bournonville Co., Van Wagnen Avenue, Jersey City, manufacturer of acetylene welding and cutting equipment, has acquired a factory, about 140 x 150 ft., on West Side Avenue, near Broadway, for an extension to its works.

The Belgian Art Iron Works, 299 Barrow Street, Jersey City, has been incorporated with a capital of \$5,000 to manufacture iron and metal specialties. Benjamin F. Chadsey, Jersey City; George H. Van Emburg, 142 Delevan Avenue, Newark; and Louis B. Doyle, 444 Milwood Street, Brooklyn, are the incorporators.

The General Electric Co., Newark, N. J., has awarded a contract for the erection of a four-story addition to its plant on Boyd Street to cost about \$14,000.

The Newark Scissors Works, Newark, has been organized to operate a plant at 43 Lawrence Street. Theodore Steinbach, 532 South Eleventh Street, and Fritz Everts, 290 Waverly Avenue, head the company.

The Rice-Macrae Motor Truck Co., Newark, has been incorporated with a capital of \$10,000 to manufacture motor trucks. Frederick T. Macrae, 228 Halsey Street, and A. L. Rice are the incorporators.

The Patent Metal Co., Newark, has been incorporated with a capital of \$25,000 to manufacture metal products. Thomas J. Walsh, 51 Belleville Avenue; J. H. Walsh and Jacob Kanster, Newark, are the incorporators.

C. Yungling & Son, Newark, have been organized to manufacture grates. Charles H. Yungling, 1166 Broad Street, heads the company.

The Newark Flush Valve Co., Newark, has been incorporated with a capital of \$125,000 to manufacture valves. R. Donaldson Brown, 828 Broad Street; N. W. Benedict and Theodore McC. Marsh, Newark, are the incorporators.

The Vulcan Steam Forge Co., Buffalo, N. Y., has completed plans for an addition to its plant at Rano Street and the Lackawanna Railroad.

Extensions are to be made to the plant of the Sill Stove Works on Oak Street, Rochester, N. Y. Its capital has recently been increased from \$100,000 to \$200,000 to afford additional manufacturing facilities.

A concrete addition, 66 x 200 ft., is to be made to the plant of the Brooks Locomotive Co., Dunkirk, N. Y.

An addition is to be made to the plant of the Stewart Motor Corporation, Buffalo, at East Delavan Avenue and the New York Central Railroad Belt Line.

The Buffalo Dry Dock Co., Buffalo, will build a one-story addition, 100 x 100 ft., to its machine shop at its plant at Buffalo River, Ganson Street and the Buffalo Creek Railroad.

The Buffalo Truck & Tractor Co., Buffalo, has been incorporated with a capital stock of \$150,000 to manufacture motor-trucks and tractors. The incorporators are E. H. OverSmith, S. B. Simpkins and George B. Burd, Erie County Bank Building.

The Hires Condensed Milk Co., Chas. Brougham, president, 913 Arch Street, Philadelphia, Pa., has let contract for the erection of a factory, 150 x 642 ft., at Binghampton, N. Y., for the manufacture of tin cans.

The United Paper Board Co., Sidney Mitchell, president, 171 Madison Avenue, New York, has let contract for the construction of a power house at Lockport, N. Y., 35 x 100 x 100 ft.

The Gooley & Edlund Co., Cortland, N. Y., is having plans drawn for a foundry building.

The Bridgeford Machine Tool Works, Winton Road, Rochester, N. Y., has let contract for erection of a one and two-story machine shop, 120 x 214 ft., and has plans prepared for a central heating plant, one story and basement.

The Volney Paper Co., Fulton, N. Y., has had plans drawn for an engine house, 35 x 49 ft., one story and basement.

The Foster Specialties Co., Buffalo, C. B. Foster, 8 Eighteenth Street, manager, is having plans completed for a foundry and machine shop, 60 x 80 ft., six stories.

The Harry E. Campbell Co., manufacturer of ornamental iron and bronze work, 8 West Fortieth Street, New York, has changed its corporate name to Campbell Architectural Iron Co., Inc. Thomas Cochran, of the firm of J. P. Morgan & Co., is a member of the new board of directors. Other executive officers remain the same. The capital stock has been increased to \$475,000.

John H. Barker has entered business for himself as manufacturers' representative with an office at 95 Liberty Street, New York. Mr. Barker aims to solicit orders for complete electrical equipment of factories with a side line in such apparatus as cranes and electrical industrial trucks for inside factory use. He has been connected with the Diehl Mfg. Co. for eight years, the last two of which he was sales manager, being appointed from manager of the New York office of the company.

New England

Boston, Sept. 24.

The Springfield Aircraft Corporation, which is to be chartered under Massachusetts laws, has leased the Wason Car Works, Springfield, Mass., and will begin the manufacture of airplanes. It is reported that the company expects to have from 1400 to 1500 men at work by January. The general manager will be Ralph K. Blair, a retired artillery captain of the British Army, who was formerly connected with the Curtiss Co. and the Canadian Aeroplanes Co., Toronto.

The Framington Screw Works, Boston, has been incorporated with capital stock of \$50,000. George C. Coit is president and Harry H. Marshall, 32 Dorchester Avenue, treasurer.

The Pilling Brass Co., Waterbury, Conn., has negotiations in progress for the sale of the plant. It is reported that the Liggett interests, which now control the Connecticut Brass

Co., Mixville, Conn., will be the new owners. The Pilling Co. was founded in 1907 and has had a rapid growth. It moved into a model new plant in 1912 and a large addition is in process of erection.

The Chelsea Foundry Co., Chelsea, Mass., has been incorporated with capital stock of \$35,000. Edward F. Maguire is president and Morris M. Broomfield, 27 School Street, Boston, treasurer.

The plant of the New Machine Co., Danbury, Conn., was damaged by fire with a loss of about \$5,000 Sept. 17.

The Doane Automatic Machine Co., Springfield, Mass., has been incorporated with authorized capital stock of \$50,000. The directors are C. Lee Straub, president and treasurer; Robert C. Cooley and M. D. Graves.

The Bullard Engineering Works, Inc., Bridgeport, Conn., has been incorporated with capital stock of \$50,000 by E. F. Bullard, Jr., S. H. Bullard and A. H. Bullard. This corporation will operate the new Government gun plant, which is being established by the Bullard Machine Tool Co.

The Gilbert & Barker Mfg. Co., Springfield, Mass., has awarded a contract for a power house, 57 x 93 ft.

The New Remington Rifle Co., Bridgeport, Conn., incorporated two weeks ago, has been organized with Henry S. Kimball, president; John P. Murray, secretary, and Fred W. Abbott, treasurer. The stock is owned solely by the Remington Arms-Union Metallic Cartridge Co.

The Union Hardware Co., Torrington, Conn., is planning to erect an addition, about 100 x 180 ft.

The Porcupine Co., Bridgeport, Conn., has increased its capital stock from \$50,000 to \$150,000.

The Frisbie Motor Co., Middletown, Conn., is adding 60 ft. to its plant.

The Colt's Patent Fire Arms Co., Hartford, Conn., will build a forge shop to cost \$30,000, boiler house to cost \$100,000 and oil house to cost \$4,500.

The Tips Aero Motor Co., Woonsocket, R. I., has been incorporated with authorized capital stock of \$100,000. The incorporators are Maurice A. Tips, Joseph Guerin, Edmond H. Guerin and T. Guerin. It is reported that the company will build a plant.

The American Steel & Wire Co. has purchased 24 acres of land adjoining its South Works, Worcester, Mass., to provide for future plant extension.

The Suffolk Castings & Supply Co., Boston, has been incorporated with authorized capital stock of \$25,000. J. J. Richards is president and Lolo B. Ellis, Waverley, treasurer.

The F. A. Hall Co., Inc., Providence, R. I., has been incorporated with capital stock of \$25,000, to manufacture machinery. The incorporators are Frederick A. Hall, 46 E. George Street; William H. Margerison and Edward F. Hall.

The United States Airplane & Engine Co., Bridgeport, is to build a plant 74 x 300 ft., one story. A section, 32 x 90 ft., will be two stories to provide for an office, drafting room and classrooms.

The Paterson Forge Co., East Main Street, Bridgeport, Conn., will build a one-story addition, 40 x 90 ft., to cost about \$8,000.

The J. N. Lapointe Co., Pequot Avenue, New London, Conn., manufacturer of broaches and broaching machinery, has commenced the construction of a three-story machine shop to cost about \$40,000.

Philadelphia

PHILADELPHIA, Sept. 25.

A continuation of buying by companies which will manufacture gun forgings for the United States Government has been the principal feature of the local machinery market during the past week. There has been a noticeable dropping off in miscellaneous inquiries, according to some dealers, and many of the smaller machine tools, especially lathes up to 24 in. are in better supply, and in some instances can be had for prompt delivery.

The Tacony Ordnance Corporation, Tacony, Pa., has about completed its purchases of machine tools, but will not close until some day this week for the 14 cranes it will require. The Taylor-Wharton Iron & Steel Co. has covered nearly all of its requirements and the same is true of the Standard Steel Works Co.

The Keystone Emery Mills, manufacturer of abrasive wheels, 4329 Paul Street, Philadelphia, has awarded a contract for the construction of a one-story addition, 30 x 100 ft. at Paul and Church Streets.

The United States Navy Department, Bureau of Yards and Docks, Washington, D. C., has commenced the erection of a new plant, about 400 x 400 ft., to cost about \$1,000,000, at the League Island Navy Yard for the manufacture of airplanes.

J. R. Kearns and A. Murphy, Philadelphia, have incorporated in Delaware the Cook Gearshift Co., with capital of \$1,000,000, to manufacture gear-shifting devices for gas engines.

The Girard Smelting & Refining Co., Tioga and Richmond Streets, Philadelphia, has had plans prepared for a two-story addition, about 40 x 112 ft.

The Pennsylvania Chemical Works, Washington Avenue, Philadelphia, will build an addition to its power plant to cost about \$25,000.

The Taylor-Wharton Iron & Steel Co., Philadelphia, has awarded a contract for the construction of a one-story forge shop, about 120 x 280 ft., at its Tioga plant, Fifty-second Street and Grays Ferry Avenue, to cost about \$70,000.

The Trenton Malleable Iron Co., Trenton, N. J., specializing in the production of iron and brass castings, will build a two-story pattern shop on New York Avenue.

The Delion Tire & Rubber Co., Trenton, N. J., has begun work on the first of three additions to its plant on Whitehead Road, to cost about \$85,000. The buildings will be one and two stories, 50 x 75 ft., 50 x 120 ft., and 25 x 75 ft. It is planned to have them ready for occupancy Feb. 1.

George F. Pawling & Co., engineers, 1438 South Penn Square, Philadelphia, are preparing plans for the erection of a new shipbuilding plant for the Newfoundland Shipbuilding Co., Harbor Grace, N. F., to cost about \$500,000.

The Cox Traveling Grate Co., Port Carbon, Pa., manufacturer of grates and iron and steel castings, has removed its headquarters to Hazleton. The works will be retained at the present location.

The Conestoga Motor Truck Co., Woolworth Building, Lancaster, Pa., is having plans prepared for the construction of a one-story, brick and concrete building about 60 x 200 ft. Wayne M. High, Reading, is architect.

The De Lorenzo Aeroplane Co., Donora, Pa., has been incorporated in Delaware with capital of \$1,000,000 to manufacture aircraft. John De Lorenzo, Gust Celagis, Donora, and E. Green, Johnstown, Pa., are the incorporators.

The Lehigh Valley Railroad is planning to enlarge its locomotive shops at Hazleton, Pa.

The Delaware Marine Motors Co., Wilmington, Del., has been incorporated with a capital of \$50,000 to manufacture marine engines and motors. William H. Murray, H. Roy Freck and David J. H. Bacon are the incorporators.

The Frick Company, Waynesboro, Pa., has started the erection of a plant for the manufacture of its new gas tractor. A structure 60 x 90, two stories, will be built. The company hopes to have tractors for demonstrating purposes ready within the next 30 days, but the new plant will not be completed for several months.

Baltimore

BALTIMORE, Sept. 24.

The Redman-Vane Shipbuilding Co., Baltimore, recently organized, has acquired the shipbuilding plant of J. S. Beacham & Brother on the Key Highway. The new company plans extensions and improvements, including machine shop equipment and facilities for repair work. J. C. Redman heads the company.

The Consolidated Gas, Electric Light & Power Co., Baltimore, is preparing plans for an addition to its power plant at Westport to have a capacity of 50,000 kw. and is to be ready for service in about 18 months. With other improvements and extensions in the company's plants and system, the work is estimated to cost about \$5,500,000.

The Virginia Chain Co., Parkersburg, W. Va., has been incorporated with a capital of \$40,000 to manufacture chains. J. W. Romaine, John Marshall and M. E. Hiehle are the incorporators.

A new electric power plant to cost about \$40,000 will be installed at the works of the Greenbrier Colliery Co., Sevy, W. Va. J. Wade Bell is manager.

The Maryland Shipbuilding Co., Lexington Street Building, Baltimore, is expected to begin the construction of vessels in the near future.

The Baltimore Dry Dock & Shipbuilding Co., Baltimore, will build a two-story shop, 50 x 50 ft., at the foot of Fort Avenue.

The Bartlett-Hayward Co., Scott and McHenry Streets, Baltimore, will build a one-story brick addition, 30 x 142 ft., at Parkin and McHenry Streets.

The Richmond Engineering Co., Richmond, Va., of which H. S. Grigsby is manager, will construct a two-story mill to manufacture stacks, tanks, etc.

Cincinnati

CINCINNATI, Sept. 24

Several local firms participated in the large order for machine tools placed last week by the J. G. White Engineering Corporation, New York. The Government has issued a comparatively large list of machine tools, wanted for shipment to repair shops in France which calls for 24-in., 26-in. and 32-in. lathes. This makes three lists for Government requirements, two being from munition contractors. Machine-tool makers have submitted estimates on all lists and are somewhat apprehensive concerning deliveries should they be accepted.

Bookings for various machines have lately been received for shipment to Spain, one firm reporting an order for 20 portable electric drilling machines. A number of lathes have also been exported to the same country through New York houses.

The Superior Electric Mfg. Co., Cincinnati, a new organization, has purchased the electric motor and repair business of the Reno-Kaetker Electric Co., 610-616 Baymiller Street. The Reno-Kaetker Electric Co. has opened offices at 41 Main Street, and will continue the manufacture of motor-driven swing saws. F. A. Colville is general manager.

The Rapid Electrottype Co., Cincinnati, has increased its capital stock from \$50,000 to \$150,000, and is having plans prepared for a new plant at McMicken Avenue and Race Street.

The American Valve & Meter Co., Cincinnati, will erect an addition to its plant on Spring Grove Avenue estimated to cost \$10,000. It will be used mostly as a storage and shipping department.

Contract for the one-story addition, 50 x 300 ft., to the plant of the Worthington Pump Corporation, Carthage Place, Cincinnati, has been let to Austin & Co., Cleveland.

The Niles Tool Works Co., Hamilton, Ohio, whose foundry has been closed for several months, has resumed operations with a reduced force that is gradually being augmented. The only dispute between the company and its molders was the question of recognition of the union.

The Cullen & Vaughn Co., Hamilton, building contractor, has purchased the plant of the East Avenue Planing Mill Co., and will remove the equipment to its central plant.

The Dayton Welding Co., Dayton, Ohio, has been incorporated with \$10,000 capital stock by W. L. Blackwell and others. It was heretofore operated on a partnership basis.

The New Favorite Mfg. Co., Columbus, Ohio, has been incorporated with \$25,000 capital stock to manufacture household specialties. Erwin R. Jones is one of the principal incorporators.

The Rolf Heater Mfg. Co., Columbus, has recently made an addition to its plant to house a metal welding and machine repair department.

It is reported that the Atlas Portland Cement Co. will erect a cement plant at West Charleston, Ohio.

Chicago

CHICAGO, Sept. 24.

One of the largest deals negotiated in this territory in recent months was the placing a few days ago of a blanket order with Manning, Maxwell & Moore, Inc., for machine tools valued at about \$600,000, required by the Minneapolis Steel & Machinery Co., Minneapolis, Minn., for the execution of shell orders. Reference to some of these orders has been made heretofore, but it appears that the company will be called on to supply more shells than has been generally understood. The company will have the benefit of experience on similar work on foreign orders.

Dealers are doing an excellent business, with buying mostly of the miscellaneous order, the aggregate being very satisfactory. There is no rush to buy, but in the past few days the smaller shops have been more active in seeking tools. For heavy tools there is a large demand, but transactions are greatly impeded by far-off deliveries, a natural result of heavy buying on the seaboard which has filled tool-builders' shops to overflowing. Large second-hand machines are quickly taken after they reach dealers' warerooms. In some cases before there has been any opportunity to clean and overhaul them. An extraordinary demand for slotting machines has developed.

As a result of the widely known lack of various new tools machines ancient enough to be considered relics are making their appearance on the market. Dealers will not buy these machines, but in some cases owners ask that they be taken on consignment in the hope that some one in distress will take them.

Pressure from Washington has been brought not infrequently in the effort to secure the delivery of new tools to manufacturers who have war orders in hand.

A contract has been let for a one-story reinforced concrete factory extension, 40 x 70 ft., to cost \$10,000, for the Goldsmith Brothers Smelting & Refining Co., 5844 Throop St., Chicago.

The Royal Enameling & Mfg. Co., 326 West Madison Street, Chicago, manufacturer of stamped ware, will erect a one-story machine shop, 76 x 100 ft., at Desplaines, Ill., to cost \$12,000. Contracts have been awarded.

Contracts have been awarded for the construction of a one-story addition to a factory at 1726 to 1734 North Kolmar Avenue, Chicago, D. J. Hauptman, 5325 Kenmore Avenue, owner, to cost \$18,000. The plant is occupied by the Boss Nut Co., Inc., manufacturer of bolts and nuts.

The Apex Electric Mfg. Co., 1410 West Fifty-ninth Street, Chicago, is taking bids on a one-story factory, 115 x 123 ft., at West Fifty-ninth and Bishop Streets, to cost about \$25,000.

A one-story factory, 75 x 125 ft., to cost at least \$25,000, is to be erected at 1646-1650 Walnut Street, Chicago, for the Jewel Electrical Instrument Co.

The Howe Mfg. Co., Chicago, maker of the Howe spotlight and other lighting devices, has leased for a period of 10 years a four and one-half-story and basement fireproof building at 115-123 East Ontario Street, Chicago; also a two-story building adjoining.

The car manufacturer, reported a week ago to have purchased 32 acres at Hammond, Ind., on which to build a plant for making tank cars, was the Keith Car Co., 122 South Michigan Avenue, Chicago. It is planned to start construction at once.

Building permits have been issued to the Standard Forgings Co., Indiana Harbor, Ind., for the construction of extensions, including machine shops, which will cost about \$200,000.

Construction work on the proposed new \$2,000,000 transfer yard at Gibson, to be built by the New York Central, Indiana Harbor Belt and Michigan Central railroads, will be deferred until after the war because of the high cost of building materials.

The James A. Brady Foundry Co., Chicago, which recently completed a new foundry, has increased its capital stock from \$25,000 to \$300,000.

The Power Transmitting Co., Peoria, Ill., has been incorporated with a capital stock of \$200,000 by H. H. White, Emil Kramer and R. V. Ralph.

The Southern Illinois Machine & Foundry Co., Murphysboro, Ill., has prepared plans for a foundry and forge shop to cost about \$35,000.

The Mitchell Machinery Co., Peoria, will build an addition to its plant.

Six buildings are being constructed at Spirit Lake, Duluth, for the Dougall-Duluth Shipbuilding Co., which include two machine shops, a carpenter shop, power house, office building and storage warehouses. It is expected that late this fall or early in the winter the first keel will be laid.

The A. S. Ford Munitions Co., Chicago, has been incorporated in Delaware with capital of \$1,500,000 to manufacture machine guns, rifles, etc. C. H. Dye, R. W. Plummer and H. P. Dickenson, Chicago, are the incorporators.

Milwaukee

MILWAUKEE, Sept. 24.

Machine-tool builders, especially those specializing in milling machines, are getting further behind on deliveries as the result of the enormous demand for the execution of Government contracts. It is stated that the maximum capacity of shops will be required for fully 18 months to fill orders now booked.

The shipbuilding industry in this section is expanding to a heretofore unheard of degree. A new yard is to be established at Milwaukee and another at Green Bay, Wis.

Although high prices of machinery have been responsible for a slackening in the demand for electric power plant equipment, it is announced that a project involving \$500,000 will be undertaken at Stevens Point, Wis., before the close of the year.

The labor situation is satisfactory. The employment of women in metal-working industries is increasing.

Carl Hartmann, Green Bay, Wis., of the Hartmann-Greiling Co., founder and machinist, is organizing a shipbuilding company among local capitalists, which will establish new yards on Green Bay, Lake Michigan, for the construction and repair of steel and wooden ships. A site, 350 x 500 ft., has been purchased at the mouth of Fox River, and two berths

accommodating vessels 260 ft. long and 40 ft. beam, will be installed. The new organization, it is said, will be closely identified with the Hartmann-Greiling Co., which has Government contracts for refitting and rebuilding Lake steamships for ocean service, and will also do considerable foundry and machine work for the new company. The new yards are to be ready about the middle of 1918 and will employ from 90 to 100 workmen.

The DePere Mfg. Co., DePere, Wis., which has a Government contract for water-tube, high-pressure marine boilers of 200 hp. each, will make a number of additions to its plant. The working force will be increased to 100 or 125. Ward Clark is general manager.

The Wohlrab Gear Co., Racine, Wis., has been incorporated with a capital stock of \$75,000 to manufacture gears, transmissions and other machinery parts. The incorporators are Paul Wohlrab, Charles Kreuzke and Max W. Heck, attorney.

The Appleton Auto Body Co., Appleton, Wis., has awarded the general contract for its new plant at Spencer Street and Pierce Avenue, costing about \$25,000.

The Plymouth Motor Mfg. Co., successor to the Steiner Mfg. Co., Plymouth, Wis., has completed its reorganization and elected the following officers: President, George W. Brickbauer; vice-president, H. J. Goelzer; secretary, Gus W. Schiereck; treasurer, E. M. D. Korte. The plant is being enlarged to afford increase in the production of stationary and portable farm and general-purpose engines.

The Crank Shaft Valve Movement Corporation, Green Bay, Wis., has been incorporated with a capital stock of \$300,000 to manufacture internal combustion engine devices, engines and other crank machines. The incorporators are Sylvester Duquaine, A. L. Cannard, Jules Gerard, John Findelsen and Julian Cannard.

The Olin Mfg. & Supply Co., Superior, Wis., has been organized with a capital stock of \$15,000 to manufacture cutlery and hardware. The incorporators are J. A. Olin, John Jepson and H. G. Pickering.

Scheldewind & Zehms, Sheboygan, Wis., have awarded contracts for the erection of a brick machinery repair shop, 44 x 96 ft., at Indiana Avenue and South Fourteenth Street.

The Milwaukee Tool & Forge Co., Milwaukee, has been incorporated with a capital stock of \$12,000 by George F. Phillips, R. L. Wheeler and George Haubert.

The Kohler Co., Kohler, Wis., manufacturer of bathtubs and enameled sanitary ware, will erect a three-story reinforced concrete addition to its plant, 80 x 215 ft. Plans are being prepared by Brust & Philipp, architects, 506 Free Press Building, Milwaukee. Walter J. Kohler is general manager.

The Keller Pneumatic Tool Co., Fond du Lac, Wis., is transferring its drafting and tool-making departments to the new plant at Grand Haven, Mich., and expects to complete the removal of the tool, lathe and grinding, drill press and screw machine departments within two months. The pneumatic tool department will be the last to be transferred. C. W. Hobson, assistant general superintendent, is in charge of the Grand Haven works.

The Otto Biefeld Co., Watertown, Wis., founder and machinist, will start work on the construction of a foundry and machine-shop addition as soon as it is assured of the extension of spur tracks to the site recently purchased.

Detroit

DETROIT, Sept. 24.

Increased activity in the manufacture of automobile trucks in this section, due to Government contracts, has resulted in an active demand for machine tools. The brass, copper, aluminum, and gray iron industries have improved accordingly.

Labor is well employed and manufacturers generally are busy. A number of important buildings are planned for the near future and rumors of large industrial construction work and plant extensions are more numerous.

The General Motors Co., Pontiac, Mich., will build 1000 1½-ton chassis for the Army Signal Corps to cost \$1,989 each.

The Dobie-Detroit Steam Motors Co., Detroit, has leased for a period of five years a three-story and basement building, with 52,000 sq. ft., at Fourth and Porter Streets, formerly occupied by the Boles Iron Works.

The J. E. Boles Iron & Wire Works has completed a new plant at 288 Milwaukee Avenue, Detroit. It manufactures ornamental iron, structural steel, truck frames, fire escapes, etc., and has a capacity of 50,000 tons per annum. J. E. Mansfield is vice-president and general manager.

The Universal Truck Body Co., Jonesville, Mich., is erecting a new factory and enlarging its force.

The Lapeer Truck Co., New Haven, Mich., has purchased eight acres of land for the erection of a factory.

The Armstrong-Whetstone Co., Lapeer, Mich., is now turning out an automobile trailer.

The General Motors Co., Detroit, has completed plans for the construction of a new drop forge plant to cost about \$300,000, and consisting of three one-story buildings, 160 x 600 ft., 75 x 600 ft. and 65 x 300 ft. It is also arranging for the erection of new factory in Flint, Mich.

The plant of the Edward F. Lyon Co., Detroit, has been equipped to manufacture axle shafts for automobiles.

The Zenith Carburetor Co., Detroit, is building a four-story addition, which will increase its output 80 per cent.

The Hess-Pontiac Spring & Axle Co., Pontiac, Mich., will construct two additional factory units within a short time.

The National Spring & Wire Co., Albion, Mich., has sold its plant at Windsor, Ont., to the McGregor-Banwell Co., Ford City, Ont., manufacturer of wire fences.

The Parker Rust-Proof Co. of America, Detroit, will establish a factory in St. Louis for the manufacture of its product. Clark W. Parker, Detroit, is president.

The Ford Motor Co., Detroit, will erect a four-story addition to Plant A.

The Petoskey Pump Co., manufacturer of rotary pumps, Petoskey, Mich., has broken ground for an addition, 40 x 80 ft.

The Jordon & Steele Mfg. Co., Charlotte, Mich., manufacturer of pump supports, is erecting a new factory. Frank P. Town, Charlotte, is president; J. S. Edmonds, vice-president and manager, and Bert L. Taylor, secretary and treasurer.

The Van Buren Brass Foundry, Sturgis, Mich., was totally destroyed by fire last week with a loss of \$20,000.

The Lincoln Motors Co., Detroit, recently formed by Henry M. and Wilbur C. Leland for the manufacture of airplane motors, is rushing work on a large factory in Detroit. The Common Council has given the company permission to close two blocks of a city street to allow continuous building.

Work has begun on the construction of an addition to the plant of the Grand Rapids Textile Machinery Co., Grand Rapids, Mich., to cost \$8,000.

The Manistee Shipbuilding Co., Manistee, Mich., is planning to commence operations at its new shipbuilding plant early in October. The company is a subsidiary of the Northern Transportation Co., Baltimore, Md.

Cleveland

CLEVELAND, Sept. 24.

The placing of large orders for machines for airplane work has been the feature of the market the past week. The Lincoln Motor Co. and the Packard Motor Car Co., Detroit, which have taken large contracts for Liberty motors, have been heavy buyers and placed orders through a Cleveland machinery house for about 50 multiple spindle drilling machines aggregating about \$200,000.

A new inquiry has come from the Fore River Shipbuilding Corporation for 17 turret lathes, 10 being large machines. The placing of a large amount of machinery equipment is pending in Erie, Pa., for the plants of the Erie Forge Co., the American Brakeshoe & Foundry Co. and the Westinghouse Electric & Mfg. Co. The demand for single tools and small lots continues very active.

Some buyers are now insisting on placing orders where they can secure definite price quotations rather than at prices ruling at the time of delivery, as stipulated in the selling contracts of many manufacturers.

The local labor situation has become very acute on account of many drafted men going to the army cantonment at Chillicothe the past week.

Manufacturers of aluminum products have received an inquiry from the Government for 1,000,000 to 2,000,000 aluminum canteens.

The Kelly-Springfield Truck Co., Springfield, Ohio, will build 1225 3-ton truck chassis for the Army Signal Corps at \$3,100 each.

The Cleveland Planer Co., Cleveland, has been incorporated with a capital stock of \$300,000 and has taken over the plant of the Cleveland Planer Works, maker of Cleveland open side planers. The business has been conducted for a number of years by G. W. Ford and James G. Dornbier. Mr. Ford has been in poor health and has disposed of his interest. Mr. Dornbier continues with the company as manager. The officers are Frank S. Shields, president; J. A. Camm, vice-president, both of whom are associated with the Cleveland Milling Machine Co. and also have a controlling interest in the Cleveland Machine Tool Works Co.; J. L. Whitelaw, treasurer, and James Sarrell, secretary.

The American Clay Machinery Co., Bucyrus, Ohio, has recently taken a Government order for large shells for the Navy Department. It is enlarging its foundry department and has under consideration the building of a new steel foundry.

The Kanter Metal Stamping & Mfg. Co., Cleveland, has purchased the plant formerly occupied by the National Lamp Works, Conneaut, Ohio, and plans to move to that city.

The Williams Foundry & Machine Co., Akron, Ohio, has been reincorporated with a capital stock of \$2,500,000. The officers are J. K. Williams, president; F. E. Holcomb, vice-president and general manager; C. Franz, treasurer, and William Leary, secretary.

The Woodward Machine Co., Wooster, Ohio, will dismantle its foundry at Orville, Ohio, and move it to Wooster, where a new building, 80 x 110 ft., is being erected.

The Falls Rivet Co., Kent, Ohio, will enlarge its plant by an addition, 80 x 100 ft., part of it two stories.

The Mason Tire & Rubber Co., Kent, Ohio, has placed contracts for the erection of two additions, 40 x 84 ft., two stories and basement, and 61 x 109 ft., part of the latter to be two stories and basement.

The Turnbull Motor Truck & Wagon Co., Defiance, Ohio, incorporated recently with a capital stock of \$1,000,000, will shortly begin the manufacture of motor trucks. W. O. Allen is president and general manager; A. J. Colt, vice-president; Charles C. German, treasurer, and T. T. Shaw, secretary.

The Buckeye Machine Co., Lima, Ohio, has increased its capital stock from \$50,000 to \$100,000. In addition to making gasoline engines it plans to manufacture a new type of oil engine for irrigating purposes.

The Gilliam Mfg. Co., Canton, Ohio, has increased its capital stock from \$800,000 to \$1,500,000 and will make extensions to its gray and malleable iron foundry.

The Conneaut Metal Works, Conneaut, Ohio, is planning extensions to its plant made necessary by taking Government orders.

The Conway Stove Co., Bellevue, Ohio, has purchased the business of the Hunter Mfg. Co., maker of automobile accessories.

The Central South

LOUISVILLE, Ky., Sept. 24.

A marked increase in the number of inquiries and orders received is reported by local manufacturers of power equipment and machinery, as well as distributors of motors. Hoisting engines and crane equipment are particularly active. Coal is in poor supply and labor is scarce and inefficient.

The Roy C. Wayne Co., Louisville, is in the market for a second-hand belt-driven air compressor, about 12 x 12 in., 100 lb. pressure.

The Flat Lick Coal Co., Pineville, Ky., is in the market for a hoisting engine, 20 x 25 hp., with boiler, drum and 250 ft. of 1/2-in. cable.

The Southern Machinery Exchange, Somerset, Ky., is in the market for a complete four-sided planer and matcher.

The White Oak Veneer & Lumber Corporation, Kingsport, Tenn., will rebuild its plant, damaged by fire with a loss of \$50,000.

The plant of the Johnson City Boiler & Tank Co., Johnson City, Tenn., has been purchased by the Government, according to an announcement by Henry Ehret, president. It will be dismantled at once and the equipment shipped to the Slidell Shipbuilding Co., Slidell, La., and to the Marrell-Stevens Shipbuilding Co., Jacksonville, Fla.

Indianapolis

INDIANAPOLIS, Sept. 23.

The Jenkins Vulcan Spring Co., Richmond, Ind., has been incorporated with \$750,000 capital stock to manufacture automobile springs. The directors are Thomas B. Jenkins, Edwin Schiele, Robert G. Zetrouer, John M. Lontz, George E. Seidel, Samuel E. Swayne and James A. Carr.

The Insley Mfg. Co., Indianapolis, manufacturer of structural iron work, contractors' equipment, machinery, etc., has been incorporated with \$750,000 capital stock. The directors are William H. Insley, Carl S. Wager, Ferdinand L. Pfeiffer, Alvin C. Rasmussen and R. C. Kaster.

The Indiana Portland Cement Co., Indianapolis, has been incorporated with \$1,000,000 capital stock to manufacture Portland cement. The directors are Adam L. Beck, Peter Martin, George A. Frash, W. H. Hart, Arthur T. Howe, John H. Love and Marshall Beck.

The Benbridge Foundry, Terre Haute, Ind., has been incorporated with \$25,000 capital to do a general foundry business.

ness. The directors are Richard W. Benbridge, H. C. Benbridge and Ben H. Cooper.

The Arc-Flame Mfg. Co., Jeffersonville, Ind., has been incorporated with \$10,000 capital stock to manufacture plumbing supplies. The directors are James E. Howard, Allen L. Voiers and Fayette C. Dorsey.

The Pioneer Brass Works, Indianapolis, has increased its capital stock from \$10,000 to \$70,000.

The Mount Vernon Electric Light & Power Co., Mount Vernon, Ind., has increased its capital stock from \$5,000 to \$100,000.

The American File Renewing Co., Anderson, Ind., has changed its name to the Continental File Corporation.

The Standard Ignition Co., Elkhart, Ind., has been incorporated with \$200,000 capital stock to manufacture magnetoes, parts and electrical devices. The directors are Andrew H. Beardsley, Martin E. Crow, William H. Foster, John F. O. Stratton and Edward B. Zigler.

The Studebaker Corporation, South Bend, Ind., has awarded the contract for the construction of a power plant, 87 x 123 ft., to cost about \$100,000.

St. Louis

ST. LOUIS, Sept. 24.

The Farmers' Concrete Post Co., Oklahoma City, Okla., has been organized with \$100,000 capital for the manufacture of concrete posts, etc. E. D. Wrinkle is general manager.

Beaver City, Okla., will purchase about \$8,000 worth of electric generating equipment.

The Metzner Stove Repair Co., Kansas City, Mo., has been incorporated with a capital stock of \$80,000 by Melford Loeb. Peter H. Wagner and others for the manufacture of stove parts and repairs.

The Republic Oil & Refining Co., Shreveport, La., J. W. Atkins, president, will equip an oil refining plant involving an investment of \$250,000.

The Osage Mutual Oil & Refining Co., Pawhuska, Okla., with capital of \$150,000, will equip a plant with a daily capacity of 2500 bbl. and is receiving bids for centrifugal pumps, pipe cutters and threaders, boilers, engines, etc.

The Vernon Parish Lumber Co., Pawnee, La., will equip a band and circular sawmill with a daily capacity of 125,000 ft. J. H. Kurth, Jr., is manager.

The Kansas Sheet Steel & Tubing Co., Kansas City, Mo., has been organized with a capital stock of \$1,000,000 by W. S. Randall, Portland, Me.; F. A. Armstrong, Wilmington, Del., and C. M. Egner, Elkton, Md. A plant will be installed.

The Tucker Duck & Rubber Co., Fort Smith, Ark., will install wood-working and steel stamping machinery to manufacture camp equipment. Punch-presses, tumbling machines, grinders, etc., are wanted.

The Gulfport Shipbuilding Co., Gulfport, Miss., has been organized with W. T. Stewart, president, and will establish a plant at once.

The sugar refinery of the Leinster Plantation Co., Bunkie, La., has been burned with a loss of \$200,000. It will be rebuilt and new machinery bought.

The Cannery Supply Co., Jackson, Miss., is in the market for crushing and extracting machinery.

The Solid Steel Scissors Co., Fort Smith, Ark., is planning for the installation of new machinery at its works.

Texas

AUSTIN, Sept. 22.

Industrial activities continue unusually brisk. The situation in Mexico continues to improve and heavy orders for farming machinery and small tools are being placed with dealers throughout the State.

The Midland & Northwestern Railway Co. Midland, has awarded a contract for the construction of machine shops and round house to C. A. Stark, Midland.

The City Commission, Abilene, will install a large pumping plant in connection with the municipal water supply system.

The Charles Mfg. Co., El Paso, manufacturer of metal building materials, is to be moved to San Antonio, where a plant equipped with the latest machinery will be installed.

The Mammoth Wind Mill Mfg. Co., Las Cruces, has been incorporated with a capital stock of \$500,000 to manufacture wind mills. The incorporators are the J. L. La Driere, Las Cruces; Zeno La Driere and Jeroy Henry, Douglas, Ariz.

The Southern Ice & Cold Storage Co., San Antonio, has

awarded contract to the York Mfg. Co., York, Pa., for the construction of an ice factory with a capacity of 165 tons per day.

F. W. Heldenfels and C. A. Heldenfels, Beeville, have acquired a site at Rockport upon which they will construct a shipbuilding plant. Government contracts have been acquired for four wooden hulls, each to cost \$300,000.

California

SAN FRANCISCO, Sept. 18.

While some machinery houses have noticed no diminution in the volume of business, there has on the whole been a slackening of orders since the first of September, especially in the demand for smaller tools. Shops have been limiting orders to actual necessities because of the threat of the iron workers' strike which became a reality yesterday.

The Pacific Coast Shipbuilding Co., Oakland, recently incorporated, has secured a site of 2800 ft. at Bay Point, where a plant with a minimum capacity of 100,000 tons of steel ships will be erected. John T. Scott, for many years superintendent of the Union Iron Works, and more recently with the Moore & Scott Iron Works, will be superintendent. It is stated that about \$1,500,000 will be spent in building and equipping the plant.

J. H. Stelling, San Francisco, has bought the plant of the Christofferson Aircraft Co., Redwood City, for \$20,000.

The American Shipbuilding Co., Martinez, has been incorporated with a capital stock of \$500,000 by Fairfax Crosby, Harry Blair, J. B. Salituri and W. M. Jones.

The H. P. Anderson Shipbuilding Co., San Francisco, has been incorporated with a capital stock of \$200,000 by H. P. Anderson, A. G. Kazebeer, C. L. Wold, C. B. Carlson and E. F. Henderson.

The Western Gas Engine Corporation, Los Angeles, has changed its name to the Western Machinery Co.

The United States Shipbuilding Co., Los Angeles, has been incorporated with a capital stock of \$3,000,000 by Benjamin F. Graham, Donald Barker, J. M. O'Brien, T. B. Young, G. E. Jones, Isaac Lord and C. H. Evans. A plant will be erected at a cost of approximately \$350,000 at San Diego.

The American Aircraft Co., Los Angeles, has been incorporated with a capital stock of \$10,000 by Joseph Mattingly, Roy Bower and H. S. King.

The Murray Mfg. Co., Oakland, will erect a machine shop at a cost of about \$10,000.

The Automatic Controller & Mfg. Co., Ogden, Utah, has been incorporated by Cleveland Redfield, J. W. O'Brien, T. L. Whitehill and William J. Stone to manufacture electrically-operated mechanical devices.

A new electric power plant to cost about \$400,000 will be constructed in the San Gabriel Canyon, near Azusa, by the United Light & Power Co., Los Angeles, to have a capacity of about 6000 kw. G. W. Gilbreth is engineer.

The Burdette Oxygen Co., Los Angeles, successor to the Western Oxygen Co., manufacturer of oxygen and air products, is having plans prepared for a one-story plant, about 60 x 75 ft., on Fifty-seventh Street, near Santa Fe Avenue.

The Improved Valveless Pump Co., Los Angeles, has been organized to operate a works at 316 East Third Street. Frank F. Ambrose heads the company.

The Moreland Truck Co., 1701 North Main Street, Los Angeles, has commenced the erection of the first unit of its new plant at Burbank. The new works, to cost over \$500,000, will be devoted in part to the manufacture of tractors of both high wheel and caterpillar types suitable for light and heavy work, ranging from 30 to 75 hp.

The National Compressed Air Machinery Co., Los Angeles, has been organized to operate at 418 East Third Street. F. A. Hatfield, 1427 Carrol Avenue, heads the company.

The Pacific Northwest

SEATTLE, WASH., Sept. 18.

Aside from labor troubles the lumber market has improved. The demand for shipbuilding purposes is increasing, and it is expected will continue throughout the fall.

Labor troubles are being experienced in Portland shipyards, although the matter had not developed into a strike. Strenuous efforts are being made for a settlement without a walk-out.

The West Coast Chemical Co., Seattle, manufacturer of dyes, has purchased 200 acres at Cumberland, Wash., on which it will erect a plant for the manufacture of coal-tar products.

The Hydraulic Appliance & Equipment Co., Seattle, has been awarded a contract by the National Pump Co. for the manufacture of rotary pumps, costing \$35,000. The Hydraulic company will install about \$7,000 worth of additional machinery.

E. M. Miner announces that he has sold the Newport Iron Works, Newport, Wash., and has established the Miner Machinery Exchange, at 907 North Howard Street, Spokane, Wash., where a line of machinery, tools and supplies will be carried.

The Premier Engine Works, Portland, Ore., has been incorporated with \$200,000 to manufacture machinery and build ships. The incorporators are J. C. Pierce, George H. and Charles B. Bailey and A. C. Luetgert.

The Cœur d'Alene Hardware & Foundry Co., Wallace, Idaho, has increased its capital stock from \$500,000 to \$1,000,000.

The Sumner Iron Works, Everett, Wash., has received a contract from the Emergency Shipping Board for marine engines, to cost \$240,000. The plant will work 24 hr. per day for the next six months.

Plans have been completed by the Olympic-Portland Cement Co., Seattle, for the construction of a coal pulverizing plant in Bellingham.

The Seattle Chain Works, Seattle, recently reorganized with H. E. Woolley as president and general manager, will erect a plant, consisting of two V-shaped buildings, 50 x 14 ft. and 50 x 112 ft., to cost \$55,000. An office building and coke house will also be built. The company will manufacture studding chains and cables for ships and various grades of hoisting, conveying and machine chains.

The Three-Ply Veneer & Box Co., Kirkland, Wash., has completed plans for its proposed veneering plant which, it is stated, will cost \$250,000. The main building will be of concrete, 150 x 450 ft.

The Northwestern Electric Co., Portland, contemplates the erection of a power plant on the White Salmon River, to cost \$400,000.

The Pacific Marine Iron Works, Portland, is operating part of its new plant and is constructing boilers for Government steamers. Within 60 days the remainder will be in operation, and will turn out a triple expansion engine of 1600 hp. and four boilers monthly.

The Columbia River Shipbuilding Co., Vancouver, Wash., has purchased seven acres of land, which will be used for immediate extensions to its plant.

The Automatic Nut-Lock Co., Seattle, has been incorporated for \$100,000 by Frank E. Gilbert, S. S. Hoover and C. J. Perret.

A. C. White, Bonners Ferry, Idaho, will erect a sawmill on Coleman Creek to have a capacity of 25,000 ft. per day.

The Union Timber & Products Co., Port Townsend, Wash., has secured a site nearby on which a wooden shipbuilding plant will be erected, also a sawmill to cut ship timber.

The Ducrest Stump Puller Co., Seattle, has purchased a site on Dearborn Street, on which it will erect a plant.

Canada

TORONTO, Sept. 24.

The Canadian Linderman Co., has rented the factory of the Tobin Arms Co. at Woodstock, Ont., and will install machinery at once for operation day and night on an order received for \$14,000,000 worth of munitions for the United States Government. The main office of the company is in Muskegon, Mich., and its Woodstock plant has been running day and night on war orders. With the new plant just acquired it is expected that 500 men will be employed.

J. B. Mackenzie, Georgetown, Ont., is in the market for an electric motor, 5 to 7½-hp., 220 volts, 25 cycle.

The McKinnon Industries, Ltd., St. Catharines, Ont., has been incorporated with a capital stock of \$1,000,000 by Lachlan E. McKinnon, Walter A. Notman, John W. McKinnon and others to manufacture iron, steel, brass, machinery, fittings, etc.

The Wallace Shipyards, North Vancouver, B. C., has let the contract for the erection of a foundry on Industrial Island, B. C., to Hodson & King, Vancouver. Building operations will commence immediately.

The Pacific Dredging Co., Vancouver, B. C., has completed two buildings in connection with its plant on Industrial Island. It is the intention to erect three other buildings, including carpenter, pattern and machine shops.

Construction work will begin at once on a plant on Industrial Island, Vancouver, B. C., for the Shaahe Machinery Co., New Westminster, B. C. Gardner & Mercer are the architects.

The Canadian Vickers, Ltd., Montreal, will manufacture deck machinery in space formerly devoted to the manufacture of shells.

Jacob Hux, Rodney, Ont., is in the market for an upright steam boiler, 2 to 4-hp.

Three Rivers, Que., will commence work immediately on the construction of a pumping plant and reservoir. R. S. & W. S. Lea, 10 Cathcart Street, are the engineers.

The Goderich Mfg. Co., Goderich, Ont., will rebuild its plant, recently destroyed by fire with a loss of \$90,000.

Plans are being prepared for the erection of a factory addition for the A. R. Whittall Canadian Co., Ltd., 7400 Mullins Street, Montreal, tin can manufacturer. Sydney Comber, 511 St. Catharine Street West, is the architect.

The Oak Tire & Rubber Co., Oakville, Ont., will build a plant for the manufacture of automobile tires, etc., and proposes to commence building operations at an early date. Frank Low is managing director.

Eugene, Julien & Cie, Ltd., 1200 St. Valier Street, Quebec, will build a concrete block and brick boiler house to cost \$9,000.

The St. John Shipbuilding Co., St. John, N. B., has engaged J. L. Smith, engineer, to prepare plans for a shipbuilding plant at St. John. Construction work will begin at an early date.

The Miner Rubber Co., Yamaska River, Que., will build a power house to cost \$5,000.

Cushing Brothers, Ltd., Duchess and Ninth Streets, Saskatoon, Sask., will be in the market this winter for 100 gasoline engines, etc.

The plant of the Eastern Steel Co., Trenton, N. S., manufacturer of shells, was destroyed by fire Sept. 19 with a loss of \$125,000.

Government Purchases

WASHINGTON, Sept. 24.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, opening dates unassigned, schedule 1488, for three geared head, 16-in. engine lathes; schedule 1487, for four motor-driven 15-in. centrifugal pumps, all for Philadelphia; schedule 1475, opening date Oct. 2, for one boring and turning mill for Norfolk, Va.; schedule 1497, until Oct. 16, for four 32-in. sliding presses, one radial drill, one 5-ft. universal radial drilling machine, two universal motor-driven machines, 10 engine lathes, eight quick change engine lathes, two triple geared engine lathes, 12 quick change engine lathes, one heavy duty geared head engine lathe, one motor-driven engine lathe, one boring and turning mill, one vertical boring and turning mill, one 53-in. standard boring and turning mill, one motor-driven scythe boring mill, one 24-in. heavy duty shaper, one crank shaper, one 16-in. heavy crank shaper, one motor-driven reversing planer, one motor-driven reversing planer, 30 by 30 in. by 10 ft., one motor-driven radial drill, two 14-in. single spindle sensitive drills and two single spindle drills, for Boston.

Bids were received by the Bureau of Supplies and Accounts, Navy Department, Washington, for furnishing material and supplies for the naval service as follows:

Schedule 1732½, Construction and Repair, Class 71, Philadelphia—Motors, Bid 2, \$964.40; 3, \$953.40; 5, \$1,015; 7, \$1,068; 9, \$954; 14, \$962.70; 15, \$1,067; 18, \$978.50; 20, \$981.25; 21, \$980.

Schedule 1733½, Construction and Repair, Class 72, Philadelphia—One milling machine, Bid 8, \$975.

Schedule 1728½, Construction and Repair, Class 73, Philadelphia—One aeroplane propeller turning lathe, Bid 8, \$3,063 and \$3,190.

Schedule 1735½, Construction and Repair, Class 74, Philadelphia—One self-feed rip and edging saw, motor-driven, Bid 6, \$1,255.96, \$1,315.96, \$1,520.96, and \$1,580.96.

Schedule 1439, Steam Engineering, Class 62, Philadelphia—One motor-driven lathe, Bid 114, \$21,000. Class 63, Philadelphia—One molding machine, Bid 55, \$3,950; 86, \$4,401; 91, \$4,190; 120, Item 1, \$907.50.

Schedule 1456, Steam Engineering, Class 64—One stamping press, motor driven, Bid 16, \$4,910; 79, \$4,325; 89, \$3,285; 106, \$6,200; 108, \$3,695.

Schedule 1457, Steam Engineering, Class 65, Providence—One universal milling machine, motor driven, Bid 89, \$3,794. Names of the bidders and the numbers by which they are designated are as follows:

Bid 6, J. A. Fay & Egan Co., Cincinnati; 8, Manning, Maxwell & Moore, 19 W. Forty-sixth Street, New York; 16, E. W. Bliss Co., Adams and Plymouth streets, Brooklyn, N. Y.; 55, Herman Pneumatic Machine Co., Pittsburgh; 86, The Osborn Mfg. Co., Cleveland; 89, Henry Prentiss & Co., New York; 91, J. W. Parson Co., Philadelphia; 106, The W. H. Stoll Co., Buffalo; 108, Sherritt & Stoer Co., Philadelphia; 114, Lindel-Morris Co., Eddystone, Pa.; 120, Mumford Molding Machine Co., Chicago.

It has recently come to the attention of the Navy Department that certain persons representing themselves to be manufacturers' agents or brokers have been writing to manufacturers that they are in a position to obtain contracts for them, obtain more expeditious payments, and even have the goods of particular manufacture accepted for Government use. These statements have in some cases had direct reference to purchases being made by the Navy Department under competitive bidding and public competition and are, therefore, altogether without foundation.

It is desired that all firms regularly manufacturing or marketing products used by the Navy Department bid direct and not through the medium of so-called manufacturers' agents or representatives.

